3 4698 3

THE LANCET.

No. 4218. Vol. CLXVII. LONDON, SATURDAY, JULY 2, 1904. [Pp. 120+88.

CONTENTS.

THE CAVENDISH LECTURE on Experiments of the Immunisation against Infection of Operation Wounds, especially on the Peritoneum. Delivered before the West London Medico-Chirurgical Society on June 24, 1904, by JOHANN VON MIKULICZ-RADECKI, M.D., LL.D., Professor of Surgery in the University of Breslau 1

THE MILROY LECTURES on Deaths in Childbed: a Preventable Mortality. Delivered before the Royal College of Physicians of London on Feb. 25th and March 1st and 3rd, 1904, by W. WILLIAMS, M.A., M.D., D.P.H.Oxon., Medical Officer of Health to the Glamorgan County Council.—Lecture II. 4

ORIGINAL ARTICLES.

The Causation, Diagnosis, and Treatment of Perforating Ulcer in Typhoid Fever. By E. W. GOODALL, M.D.Lond., Medical Superintendent of the Eastern Hospital, Homerton ... 9

On the Beneficial Effects of Sodium Arseniate employed Hypodermically in Tsetse-fly Disease in Cattle. By EDWARD J. MOORE, F.R.C.S., L.R.C.P. Irel., District Medical Officer, Asaba, Southern Nigeria, West Africa 15

The Downes Electro-thermic Angiotribe. By H. MACNAUGHTON JONES, M.D.Q.U.I., M.A.O.R.U.I. (Hon. Causâ), F.R.C.S.Irel. & Edin.—(*Illustrated*) 15

On Diabetic Neuritis. By F. W. PAVY, M.D. Lond., LL.D. Glasg., F.R.S., Consulting Physician to Guy's Hospital 17

The Treatment of Hæmorrhoids and Allied Conditions by Oscillatory Currents of High Tension. Based on an experience of 118 Cases. By T. J. BOKENHAM, M. R. C. S. Eng., L.R.C.P.Lond. 19

Accidental Vaccinia of the Nasal Cavity. By W. H. BOWEN, M.B., B.S.Lond., F.R.C.S.Eng., late Clinical Assistant in the Throat Department, Guy's Hospital 20

The Presence of Bacteria in the Organs of Healthy Animals. By H. DE R. MORGAN, M.A. Oxon., M.R.C.S.Eng., L.R.C.P. Lond., D.P.H.Cantab. 21

On Non-Flagellate Typhoid Bacilli. By J. W. W. STEPHENS, M.D.Cantab., Walter Myers Lecturer in Tropical Medicine, University of Liverpool 22

A Case of Traumatic Tetanus: Recovery. By HAROLD COLLINSON, M.B., B.S.Lond., F.R.C.S. Eng., Resident Surgical Officer at the General Infirmary, Leeds 23

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

The Mode of Infection in Tuberculosis. By J. M. FORTESCUE-BRICKDALE, M.A., M.D.Oxon., Registrar and Pathologist to the Royal Hospital for Sick Children and Women, Bristol.. 23

Treatment of Chronic Ulcer of the Leg of Long Standing. By HORATIO W. A. COWAN, M.B., C.M.Aberd. 24

A MIRROR OF HOSPITAL PRACTICE.

METROPOLITAN HOSPITAL:
A Case of Bronchiectasis treated by External Drainage. (Under the care of D^r. A. T. Davies) ... 24

WEST NORFOLK AND LYNN HOSPITAL, KING'S LYNN:
A Case of Laceration of the Brain by Contrecoup. (Under the care of Mr. H. C. Allinson) 25

MELBOURNE HOSPITAL:
A Case of General Pancreatitis with Jaundice; Cholecystotomy; Recovery. (Under the care of Dr. W. Moore) 25

REVIEWS AND NOTICES OF BOOKS.

A Text-book of Physiology. By Isaac Ott, A.M., M.D. 26

Lyon's Medical Jurisprudence for India. Third Edition. By Lieutenant-Colonel L. A. Waddell, I.M.S. 27

Alcohol: its Place and Power in Legislation. By Robinson Souttar, M.A., D.C.L. 27

Mechanism of the Paroxysmal Neuroses. By Francis Hare, M.D. 28

NEW INVENTIONS.

An Aseptic Operating Cap.—(*Illustrated*) 28

LOOKING BACK.
(From THE LANCET, Saturday, July 1, 1826.)

Foreign Department 29

LEADING ARTICLES.

IMMUNISATION AGAINST INFECTION OF OPERATION WOUNDS ... 30

THE SITE OF ST. GEORGE'S HOSPITAL 31

THE INTRODUCTION OF BERIBERI INTO SOUTH AFRICA 32

ANNOTATIONS.

The Prevention of Pulmonary Tuberculosis 33

A Visit of French Medical Men to London 34

Parkes Memorial Prize 34

Cerebro-spinal Meningitis of the Epidemic Type 34

Provident Medical Dispensaries.. 34

The Birthday Honours 35

The Sanitary Institute 35

Colliery Contract Practice in Northumberland 35

The Japanese as Chemists 36

The Epileptic Colony at Chalfont 36

Royal College of Surgeons of England 36

The Commercial Production of Vaccine Material 36

The Congress of the Royal Institute of Public Health at Folkestone 37

The Medico-Psychological Association of Great Britain and Ireland 37

The West London Hospital and Post-Graduate College 37

Changes in the Intercostal Muscles and Diaphragm in Infections of the Lung and Pleura 37

North India School of Medicine for Native Christian Women ... 38

VITAL STATISTICS:
Health of English Towns 41
Health of Scotch Towns 42
Health of Dublin 42

THE HOSPITAL SUNDAY FUND.

List of Donations to the Fund. (*Continued*) 42

SPECIAL ARTICLES.

The Brompton Hospital Sanatorium and Convalescent Home at Heatherside 29

The Last School Board Report.—(*Concluded*) 38

The Metropolitan Street Ambulance Association 39

Asylum Reports 40

The Services: The War in the Far East 42

The Folkestone Public Health Congress and the Sandgate Scandal.—(*Concluded*) 47

Notes from India 49

Birmingham 49

Manchester 50

Wales and Western Counties Notes 51

Scotland 51

Ireland 52

Paris 52

Berlin 53

CORRESPONDENCE.

The Influence of the Unrecognised Case in the Spread of Communicable Disease (Mr. Edward Dean Marriott) 43

Appliances for Prevention of Miners' Phthisis (Dr. John Herbert Tonking) 44

Hydrogen Peroxide as a Germicide in Typhoid Fever (Dr. William Carter) 44

A Chronic Neurosis characterised by Frequent Paroxysms of Pain, Swelling, and Hæmorrhage in Various Parts of the Body (Dr. Robert H. Strong)... 44

Should Medical Men be allowed to Dispense their Prescriptions or not? (Dr. B. G. Morison) ... 45

The Insurance of Medical Men against the Dangers of their Profession (Mr. C. E. Russel Rendle) 45

The Nomenclature of the Sigmoid Flexure (Dr. J. B. Nias)... 45

The Royal Orthopædic Hospital (Mr. Tate S. Mansford)..... 46

The Government of India and the Royal Army Medical Corps 46

The Royal Hospital for Incurables and the Disputed Legacy (Messrs. Farrer & Co.).. 46

Thorne Defence Fund (Dr. Walter S. A. Griffith and others)..... 58

Child-study 58

MEDICAL NEWS.

London (Royal Free Hospital) School of Medicine for Women 29

Pass-list of the University of Cambridge and Trinity College, Dublin 54

Prize Day at St. Thomas's Hospital 55

National Health Society 55

South African Civil Surgeons' Dinner 55

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics 55

House of Lords 56

House of Commons 56

Appointments 57

Vacancies 57

Births, Marriages, and Deaths ... 57

Notes, Short Comments, and Answers to Correspondents ... 58

Medical Diary 59

INDEX ..... iii.-xliv.

LIST OF ILLUSTRATIONS ... xlv.-xlvii.

TITLE-PAGE.

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

R31 .L3

INDEX.

MEDICAL AND OTHER BOOKS AND PUBLICATIONS.

COVER.

PAGE

BAILLIERE, TINDALL & COX:—
Ball ..... Diseases of the Nose, &c. 1
Caldwell .... Prevention of Disease in Armies 1
Campbell, H. Respiratory Exercise in Treatment of Disease.. 1
Campbell, K. Refraction of the Eye.. 1
Sewill ..... Dental Surgery 1
Tubby ..... Appendicitis 1

CHURCHILL, J. & A.:—
Squire's Pocket Companion to the British Pharmacopœia 1
Thresh ..... Examination of Water and Water Supplies .. 1

GLAISHER:—
Wright ..... Treatment of Hæmorrhoids 1

LEWIS:—
Campbell, H. Flushing, &c. 1
" Headache 1
Herring .... Sterilisation of Urethral Instruments 1
Lewers ..... Diseases of Women 1
Radcliffe-Crocker .. Inflammations of the skin 1
Roth ..... Curvature of the Spine 1

PENTLAND Y. J.:—
Berry..... Manual of Practical Ophthalmology 1
Taaman & Miles..... Manual of Surgery 1

SAUNDERS & CO.:—
Medical Hand-Atlases 1

SMITH, ELDER & CO.:—
Lawson .... Diseases and Injuries of the Eye 1

WILLIAMS & NORGATE:—
Bastian..... Studies in Heterogenesis 1

MEDICAL LIBRARIES, &c.:—
Clinical Journal 1
David on—Sight-Testing for the G.P. 1

PAGE

BAILLIERE, TINDALL & COX:—
Allingham .. Diseases of the Rectum 11
" .. Colectomy, &c. 11
" .. Operative Surgery .. 8, 11
Bigg ..... Constipation 10
Broadbent, Sir W. .... Heart Diseases..... 5
Brownfield & Benham .. Death and Sudden Death 5
Browne & Stevenson.. Squint Occurring in Children 13
Cron & Cole ..... Modern Microscopy 5
French ..... Med. Lab. Methods, &c. 5
Herbert .... Cataract Extraction 5
Mims..... Guide to Public Health Acts 5
Latham .... Sanatorium Treatment of Tuberculosis..... 11
" .... Pulmonary Consumption 11
Lindsay .... Diseases of the Lungs and Heart 5
Monro ..... Manual of Medicine 6
Mummery .. The After-Treatment of Operations 8
Owen..... Cleft-Palate, &c..... 11
Robson & Moynihan.. Diseases of the Stomach 5
Robson..... Diseases of the Gall-Bladder 5
Rose & Carless .... Manual of Surgery 8
Stewart .... Manual of Physiology... 5
Turner, D.. Medical Electricity, &c. 5
Younger .... Insanity 11

BALE, SONS & DANIELSSON:—
Bantock .... Germ Theory of Disease 11
Moullin .... Inflammation of the Appendix 10
" .... Ulcer of the Stomach .. 10

CASSELL & CO.:—
Bland-Sutton Tumours 8
Bruce ..... Materia Medica, &c. 8
Gould ..... Surgical Diagnosis 8
Herman .... Diseases of Women, &c. 8
" .... First Lines in Midwifery
" .... Difficult Labour 8
Hutchinson.. Syphilis 9
Hutchison & Rainy .. Clinical Methods 8

PAGE

CASSELL & CO.—(Continued).
Latf & Pare.. Manual of Chemistry .. 8
Manson, Sir P. Tropical Diseases 8
Morris, H. .. Surgical Diseases of the Kidney and Ureter 8
Morris, M. .. Diseases of the Skin 11
Savage ..... Insanity &c. 9
Treves, Sir F. Operative Surgery, &c. 8
" Intestinal Obstruction.. 8
" Surgical Anatomy..... 8
" Surgical Operations 8
" System of Surgery 8
Yeo ..... Mineral Springs, &c. 9
" ..... Food in Health, &c. 9
" ..... Medical Treatment 9

CHURCHILL, J. & A.:—
Bigg ..... Spinal Caries 9
" ..... Spinal Curvature 9
" ..... Deformities of the Head and Neck 9
" ..... Amputations 9
" ..... Manual of Orthopnœy 9
Crippe ..... Ovariotomy, &c. 11
Harrison.... Stone, Prostate, &c. 11
Squire's Pocket Companion to the British Pharmacopœia 6

GLAISHER:—
Blake ..... Colitis, &c. 10
Cullingworth Charles White, F.R.S.. 10
De Presseville ..... Ethyl Chloride 10
Herschell .. Intrapuntic Technique 10
Wallace, C.S. Preparations for Operations 10
West..... Granular Kidney, &c. .. 11

GRIFFIN & CO.:—
Macleod .... Hygiene, &c. 11
West..... Organs of Respiration.. 11

JACK:—
Edinburgh Stereoscopic Atlas of Anatomy 9

KEGAN PAUL & CO.:—
Taylor ..... Diseases of the Eye 12

LEWIS:—
Moullin .... Enlargement of the Prostate 10
" .... Inflammation of the Bladder 10

PAGE

MACMILLAN & CO.:—
Hewitt ..... Anæsthetics 10
Lockwood .. Appendicitis..... 10

PENTLAND, Y. J.:—
Lockwood .. Aseptic Surgery..... 10
" .. Cure of Hernia, &c. 10

RENSHAW:—
Freund's Radiotherapy 6

RENSHAW:—
Wood ..... Application of Trusses 11

SAUNDERS & CO.:—
Medical Hand-Atlases 7, 11

SMITH, ELDER & CO.:—
Barnes ..... Obstetric Medicine &c. 3
" ..... Manual of Midwifery for Midwives..... 3
Clinical Manual for the Study of Medical Cases 3
Bitz ..... Anatomy 3
Ferrier..... Functions of the Brain 3
Gee..... Auscultation &c. 3
Heath ..... Dictionary of Practical Surgery 3
Juler..... Ophthalmic Science, &c. 3
Keetley .... Orthopædic Surgery.... 10
" .... Gastric Ulcers..... 10
" .... Complicated Fractures 10
Lawson .... Diseases and Injuries of the Eye 3
Leftwich .... Index of Symptoms 3
Marshall & Hurst .... Practical Zoology 3
Playfair .... Practice of Midwifery .. 3
Schäfer..... Practical Histology 3
Simon, Sir J. English Sanitary Institutions 3
Taylor ..... Social Evolution 3
Wells, Sir H. .... Mineral Waters &c. of Europe 3
Wood ..... Therapeutics 3

MEDICAL LIBRARIES, &c.:—
Behnke ..... Stammering 11
Blackwell—New Catalogue 12
Cox—Catalogue of X-Ray, High Frequency, &c., Apparatus 12
Dorscombe's Spa Directory—
Grant: Handbook to the Sulphur Baths 12

OFFICIAL AND GENERAL ANNOUNCEMENTS.

APPOINTMENTS VACANT:—
Army Medical Service 84
Ayr County Hospital 86
Birmingham and Midland Eye Hos. 86
Brecon and Radnor Asylum, Talgarth 86
Brighton Throat and Ear Hospital.... 86
Coventry and Warwickshire Hospital 86
Dartenth Asylum, Dartford 86
Dumfries and Galloway Royal Infirmary 84
East London Hospital for Children, Shadwell 85
Farringdon General Dispensary, Holborn Circus 85
Gravesend Hospital 86
Hereford County and City Asylum... 86
Hospital for Sick Children, Great Ormond-street 86
Huddersfield Infirmary 86
Leicester Infirmary 84
London Temperance Hospital, Hampstead-road 85
London Throat Hospital, Great Portland-street 85
Medical Society of London 84
Noble's Isle of Man General Hos. &c. 84
North-Eastern Hospital for Children, Mackney-road 84, 86
North Staffordshire Infirmary, Harrishill 85
Nottingham General Dispensary..... 85
Nottinghamshire Consumption Sanatorium, Mansfield 86
Queen's Jubilee Hospital, Earl's Court 86
Royal Hants County Hospital, Winchester 85
Royal National Hospital for Consumption, &c., Ventnor 85, 86
Royal Orthopædic Hospital 85
Sandhill Lunatic Asylum, Dundalk 85
St. Luke's Hospital, Old-street 85
St. Mary's Hospital Medical School .. 85
Stockport Infirmary 85
St. Thomas's Hospital 85
Surrey Dispensary, Southwark 84
Throat Hospital, Golden-square 84
Victoria University of Manchester .. 86
Wandsworth Union Infirmary, St. John's hill 85
West Bromwich District Hospital 84
West Riding Asylum, Wakefield..... 85
West Sussex Comb ned Sanitary District 86

ASSISTANCIES, MEDICAL 83

ASYLUMS, HOMES, &c.:—
Aberystwith, the Diarrhœa of Wales .. 77
Ashwood House, Kingswinford 73
Barrowood House Hospital 76
Bentenberg, Switzerland 80
Bishopstone House, Bedford 74
Bodorgan Manor, Bournemouth 83
Buntingford House Retreat, Herts .. 77
Camberwell House, Peckham-road.... 75

PAGE

ASYLUMS—(Continued).
Cheadle Royal, Cheadle 83
Clarence Lodge, Clapham-park 83
Cropdon, The, Nottingham 76
Colchester Sanatorium 80
Crookabarry Sanatorium, Surrey 79
Dairymple House, Rickmansworth .. 83
Dartmoor Sanatorium 78
Denton Johns' Sanatorium, Parkstone 80
Dorchester Asylum..... 75
Dunmurry, Clifton..... 75
Dunstone Park Sanatorium, Paignton 75
East Anglian Sanatorium, Nayland .. 79
Edgelberg 80
Fairford decree, Gloucestershire 75
Ferguson, Barnet 73
Finsen Light Cure, &c., Norwich 80
Flower House, Catford 76
Grove House, Church Stretton..... 76
Grove, The, Catton, Norwich 76
Hailey Open Air Sanatorium, Ipsden.. 79
Haslemere Invalid Howe 80
Haydock Lodge, Newton-le-Willows.. 78
High Shot House, Twickenham 75
Hitch, Mrs., Hollington 76
Inverralth Lodge Retreat, Collingbury 77
Lady Superintendent, Brighton 75
Lady Superintendent, Streatham 75
Lawson, Nordrach-on-Dee, Bangoury 79
London Open - Air Sanatorium, Wokingham 80
Malbourne House, Leicester 76
Middleton Hall, Co. Durham 75
Midland Open-Air Sanatorium 79
Mont House, Tamworth 76
Moorcote, Bverley 75
Mrs. W. C., Margate 75
Nordrach in Wales 79
Nordrach-upon-Mendip Sanatorium .. 79
Northlands Retreat, Wandsworth 83
Northumberland House, Finsbury-pk. 77
Northwoods House, Winterbourne..... 76
Oehli Hills Sanatorium 80
Overdale, Whitefield 75
Palmwick Sanatorium 80
Pa.k-road, Burgess-hill 83
Park House Convalescent, &c., Home, Waterloo..... 83
Plas-yn-Dinas, Merionethshire 77
Plympton House, South Devon 79
Restmore Open-air Sanatorium 80
Saltburn-by-the-Sea, Yorkshire 83
Shaftesbury House, Formby 76
Small-pox, &c., Hos., South Mimms .. 83
Springfield House Private Asylum, Bedford 75
St. Andrew's Hospital, Northampton 76
St. Luke's Hospital, E.C. 76
Stocker, Craven-street 83
St. Ed Mose, Canterbury 83
Stretton House, Church Stretton 76
Thundercliffe Grange, nr. Rotherham 83
Tower House, Leicester 76
Vale of Clwyd Sanatorium..... 79
Warneford Asylum, Oxford 76

PAGE

ASYLUMS—(Continued).
West Malling-place, Kent 77
Winchester House, Kingston-hill 74
Woodford House, Chester 76
Wye House, Buxton 76
Wyke House, Isleworth 76
Yarrow Convalescent Home, Broadstairs..... 77

BATHS:—
Badgastein 84
Bad Nauheim 81
Karlsbad 84
Langen-schwalbach 81
Leiberstein 83
Levico 82
Moffat Hydropathic 81
Plombières 83
Smedley's, Matlock 84
Waldhaus Flims, Switzerland 83
Woodhall Spa Baths 81

COMPANIONS:—
Gower, Weymouth-street 84
M., Lambeth Palace-road 84
No. 108, L.O., Strand..... 84

FINANCIAL &c.:—
Birkbeck Bank 75
English and Scottish Law Life Office.. 73
Equitable Reversionary Interest Soc. 73

HOTELS:—
Barton Court Hotel, New Milton 75
Ilfracombe—Ilfracombe Hotel..... 79
Montreux Hotel and Chateau, Belmont 79

HOUSE & ESTATE AGENTS:—
Debenham, Tewson, Farmer, & Bridgwater, Cheapside 81
Elliott, Son, & Boyton, Vere-street .. 87
Farebrother, Finsbury-square 87
Walton & Lee, Mount street 81
White & Sons, Do.-king 80
CONSULTING-ROOMS:—
No. 1004, L.O., Strand 83

LIFE & FIRE ASSURANCES:—
Prudential 72

MEDICAL ACCOUNTANTS &c.:—
Turner 83

MEDICAL AGENTS:—
Hall & Hardwicke 82
Lee & Martin..... 87
London Medical Agency 87
Manchester Medical Agency 87
Medical Agency 87
Moore 87
Reeder, Herbert 81
Reeder, J. C. 87
Orridge..... 80
Peacock & Hadley 73
Reynolds & Branson 82

PAGE

MEDICAL AGENTS—(Continued).
Scholastic, Clerical, &c., Assoc. 86, 93, 80
Turner 87
Wilkins & Co. 80

MEDICAL SCHOOLS (LONDON):—
Cooke's School of Anatomy 71
Guy's Hospital Medical School..... 71
West London Post-Graduate College.. 71

MEDICAL SCHOOLS (PROVINCIAL):—
University of Birmingham..... 71

NURSING INSTITUTES:—
Clapham Maternity Hospital..... 73
General Nursing Association 74
Hos. for Sick Children, Gt. Ormond-st. 74
Incorporated Society of Trained Masseuses 74
Leeds Trained Nurses' Institution 73
London Nurses' Association 73
Male and Female Nurses' Assoc. 74
Male Nurses' Association 74
Male Nurses' Co-operative 74
Middlesex Hos. Trained Nurses' Inst. 74
Nurses' Co-operation, Portland-place 73
Queen Charlotte's Lying-in Hos..... 74
St. John's House 74
Temperance Male and Female Nurses' Co-operation 74
Temperance Male Nurses' Co-operation 74
York-road General Lying-in Hospital, Lambeth 74

OFFICIAL NOTICES:—
London Post-Graduate Association .. 72
London Throat Hospital 71
Mount Vernon Hos. for Consumption 71
Naval Medical Examinations 72
North India School of Medicine 86
Rotunda Hospital, Dublin 71
Royal College of Physicians of London 71
St. John's Hos. for Skin Diseases 71
University of Cambridge..... 72

PARTNERSHIPS & PRACTICES.. 82

RAILWAY & STEAMSHIP CO.'S:—
Albion S.S. Co.—Norway Cruise 84
New Zealand Shipping Co..... 64
Orient-Pacific Line Pleasure Cruises. 84
Royal Mail Steam Packet Co.—Tours 84

SCHOOLS, PREPARATORY, &c.:—
Manchester Physical Training College 72
School Ship Conway 72

TUTORS & LECTURERS —
Behnke ..... 72 | Lane & Pratt .. 73
Duchesne ..... 72 | No. 382, L.O. .. 72
Fellowships .. 72 | No. 862, L.O. .. 73
Gemmell .. .. 72 | No. 924, L.O. .. 73
Gooch ..... 72, 73 | Van Praagh.... 72
Korin ..... 73 | Weymouth 71
Knight 72

(For Index to Trade and Miscellaneous Advertisements see page 4.)

SMITH, ELDER & CO.'S PUBLICATIONS.

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INDEX—(CONTINUED).

TRADE AND MISCELLANEOUS ADVERTISEMENTS.

SOYER.

PAGE

CHEMISTS & DRUGGISTS:—
McKesson & Robbins—
Compound Stearate of Zinc iii

FOODS:—
International Pharmacal Ltd.—
Pharmacy iv
" Cocoa iv
" Arrowroot iv
Wellard's Sons—
Sanitary Milk Supply ii

WATCHMAKERS, &c.:—
Smith & Sons, Ltd.—
Doctor's Watch iii
Strand Half Chronometer iii

ANATOMICAL MECHANICIANS:—
Gromsith's Artificial Legs &c. 70
Muller—Artificial Eyes 85

BOTTLE MERCHANTS:—
Imace 85
Islington Glass Bottle Company 85
Rhner Brothers, Ltd. 17

CARRIAGES, HORSES, &c.:—
Armstrong—
Coachmen's and Grooms' Liveries 16
Cortland Wagon Co.—
Cortland American Carriages 16
De Dion-Bouton—Motor Cars 15
Duryea Co.—
Duryea Power Carriages 14
George-street, Portman-square—
Spider Phaeton 16
Humber, Ltd.—Motors 19
Maythorn & Son—
Sipon Buggy 17
Improved Stanhope Buggy 17
Selvoir Phaeton 17
Pollard—Motor Cars 16
Sledge—Single Opening Brougham .. 16
Speedwell Motor Co.—
Speedwell Car 15
St. John Ambulance—
Invalid Carriages 16

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Castor Oil 62
Antitoxins, Sera, &c. 60
Hynin Amara 59
Battle & Co.—Bromidia 62
Bayer Co.—
Veronal 20
Citarin 20
Mesotan 20
Aspirin 20
Helmitol 20
Protargol 20
Bein's Oxygen Co.—Bein's Oxygen.... 63
Bullock & Co.—
Pepsina Porci 62
Acid Glycerine of Pepsine 62
Burgoyne, Burbidges & Co.—
Diacetal 63
Salocresol 63
Burroughs, Wellcome & Co.—
Tabloid Products 47
" Warning 48
" Hemoline Products 43
Christy & Co.—
Glyco-Thymoline 35
Hygoplol 31
Diokogen 32
Comar & Son—
Nourry's Iodinated Wine 54
" Syrup 54
Cacodylate of Sodium (Clin) 54
Lecithine (Clin) 54

PAGE

CHEMISTS—(Continued).
Cox & Co.—
Pills and Tablets 58
Duncan, Flockhart & Co.—
Chloroform 29
Chloryl Anæsthetic 29
Fellows—Syr. Hypophos. Co., Fellows 19
Gale & Co.—
Sapozym 64
" Antiseptic 64
General Apothecaries Co.—
Elixir Terpeni Co. 35
Mist. Chloral c. Hyoscyam Comp. 35
Linctus Limonis 35
Syrup. Glycerophosphatum Comp. 35
Special Notice, &c 35
Gilbert & Co.—
Schacht's Fluid Pepsine 30
Hewlett & Son—
Antiseptic Cream 34
Liq. Santal Flav. c. Buchu et Cubeba 34
Mist. Pepsinæ Co. c. Hamathe ... 34
" Damianæ Co. 34
" Hepatica Comp. 34
Adrenal Eucaine 34
Huggins—Ozone Paper for Asthma .. 65
Kreochyle Co.—Bald boro-Glyceride 52
Lambert Pharmacal Co.—
Listerine 24
Macfarlan & Co.—
Chloroform 63
Anæsthetic Ether 63
Malvino Manufacturing Co.—
Malvino 45
" with Cod Liver Oil..... 45
Matthaei & Co.—Dry Yeast 60
Meister Lucius & Brüning—
Valyl-Hoechst 25
Albargin 23
Oxaphor 25
Pyramidon 24
Anæsthesin 25
Trigemin 25
Pegnin 25
Gulasanol 25
Menzies Co.—Toilet Powder 64
Midgley, Ltd.—
Midgley's Medicated Soaps..... 21
Midland Laboratory, Manchester—
Castor Bromid 62
Newbery & Sons—
Glycerophene-Heil 21
Berobenphene-Heil 21
Parke, Davis & Co.—
Modern Therapy 26, 27
Raimes & Co.—
Slinger's Nutrient Suppositories .. 64
Savory & Moore—
Pancreatic Emulsion 61
Schimmel & Co.—Pullantin 64
Smith & Nephew—Scott's Emulsion 19
Squire & Sons—
Ferocal 26
Tamar Indian Grillon 65
Ward Manufacturing Co.—
Pills, Tablets, Capsules, &c. 64
Wilcox & Co.—
Santal-Midy 30
Dunnt's Syrup of Lactic-Pepsinate 30
Mentrasal 30
Morrhuol-Creosote 30
Apioline 30
Grimault's Cigarettes 54
Crystallised Digitaline 54
Cigars de Joy 48
Willows, Francis, Butler & Thompson—
Pollantin 64
Zimmermann, A. & M.—
Schering's Glycerophosphates 65
" Preparations 29

INHALERS:—
Pearse 58

FOODS:—
Allen & Hanburys—
Allenburys Milk Foods 41
" Malted Foods 41

PAGE

FOODS—(Continued).
Armour & Co.—
Extract of Red Bone Marrow 49
Aylesbury Dairy Co.—
Humanised Milk 53
Benger's Food 32
Bischoff's Diabetic Preparations 64
Bovril (Limited)—Invalid Bovril 52
Cadbury's Cocoa 52
Callard & Co.—New Diabetic Foods .. 63
Carnrick & Co.—
Liquid Peptonoids 44
Colemans & Co.—
Wincarnis 66
Fletcher, Fletcher & Co.—
Vibrona 42
Maltine Food Co.—Maltine 60
Menday & Co.—
Hæmatogen 28
Protene Foods 60
Ratmos, Clark & Co.—
Revalenta Food 60
Reinhetmer & Co.—
Nektar Wines 66
Ridge's Food 17
Reborat Co.—Roborol 60
Savory & Moore—
Peptonised Milk 51
" Cocoa and Milk 51
" Coffee & Milk 51
" Milk-Chocolate 51
Smith & Co.—Hall's Wine 53
Tibbles' Vi-Cocoa, Ltd.—Vi-Cocoa 50
Valentine's Meat Juice Co.—
Meat Juice 99
Van Abbott & Sons—
Foods for Diabetics and Obesity .. 60
Wilcox & Co.—
Martaal Wine 56
Desiccated Extract of Malt..... 55

FURNITURE, &c.:—
Carter—Invalid Furniture 60
Maple & Co.—
Billiard and Dining Table 61

MED. & SURG. APPLIANCES:—
Bailey & Son—
Veritite Truss 62
Infants' Trusses 62
Dowsing Radiant Heat Co.—
Dowsing Radiant Heat and Light Treatment 70
Hess—Orthopædic Apparatus 60
Evans & Wormall—
Improved Locker 13
Holland-Imiter Arch Sock ..... 6.
Krohne & Sesemann—Bandages ..... 1.
Marconi's Wireless Telegraph Co.—
Induction Coils 66
Mundin & Lawley—Osteology, &c. .. 60
Nolte—
Fermentation Saccharometer 18
Pond—Arch Support Socks ..... 1.
Pope & Plante—
Elastic Stockings 17
Abdominal Supporting Belts..... 17
Robinson & Sons—Gamgee Tissue .... 1.
Scaize & Co.—
Kemsbury Patent Medical Bag 12
Sykes, Josephine & Co.—
Corsets and Belts 69
Watson & Sons—
High Frequency Apparatus 70
Wood—Vinolo 19

GENERAL WATERS:—
Aerating Bitter Water Co.—Barclay.. 59
Apollinaris Co.—Aperta 60
Arabolia, Ltd.—Arabolia 67
Barrow's Malvern Waters 65
Canwal, Ltd.—Canwal 67
Cantersville Pavilion 60
Davis-Turnap Water 60
Hogg & Son—Piperazine Water 60
Ingram & Royle—
Vichy 63
Leviton Water 63
Kinlagan Mineral Waters 67

PAGE

MINERAL WATERS—(Continued).
Moss & Co.—
Woodcroft Mineral Spring Water .. 15
Salutaris Water Co.—
Salutaris Water 66

PHOTOGRAPHY:—
Christy & Co.—
Schleussner's Rontgen Plates 69
Martin—Developing Moistable Films .. 34
No. 227, C.O., Strand—Radiographs .. 34
Smith, Maldon—
X-Ray Apparatus 34

PRINTERS & ENGRAVERS:—
Cooke & Co.—
Brass Name Plates and Lamps 60
Oulston—
Brass Door Plates 12
Heraldry, &c. 12

SANITARY APPLIANCES &c.:—
Aymard Patent Milk Steriliser Co.—
Milk Steriliser 61
Fassett & Johnson—
Sanol-Kelcet 55
Joyce' Sanitary Compounds Co.—
Cyllin 27
Manlove, Alliott & Co.—
Steam Disinfectors 70
Soutwal Bros. & Barclay—
Accouchement Sets 95
" 8h cts, &c. 95
Wright, Layman & Umney—
Liquor Carbonis Detergens..... 26

STATIONERY, &c.:—
John Heath & Co.—Pens 17

TAILORS, BOOTMAKERS, &c.:—
Bult—
Frock Coat and Vest 13
Flannel, Tweed, and Blue Serge Suits 13
Dowie & Marshall—Boots 69
Fisher & Sons—
Frock Coat and Vest 13
Trousers 15
Hamilton & Co.—
Dress Suit 13

TYPEWRITING, &c.:—
Cambridge Typewriting Agency, Adelphi 12
Metropolitan Typewriting &c. Agency, Chancery-lane 17
Taylor's Typewriters Co.—
Typewriters 10

VACCINE LYMPH:—
Pankhurst's Calf Vaccine Institution .. 95
Milne—Glycerinated Calf Vaccine 95
Jenner—Institute for Calf Lymph 95
Monner's Calf Lymph Establishment.. 99
Wyeys, Ltd.—Calf Lymph 95

WATCHMAKERS, &c.:—
Benson—Doctor's English Watch 18

WINES, BEER, SPIRITS, &c.:—
Buck & Co.—"G B" Diabolo Whisky 68
Brown & Pank—
Fine Vintage Brandy 64
Dunville's Irish Whisky 57
Gautier's Liqueur Brandy 66
Harvey & Co.—Pale Ale 67
Martell's Three Star Brandy 59
Rose's Lime Juice 67
Whiteway & Co., Ltd.—
Dry Cyders 68

MISCELLANEOUS:—
Coal Tar Disinfectants Co.—
Trawler 64
Lloyd—Address wanted 64
Osborne, Garrett & Co.—
Kropp Razors 63

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The Cavendish Lecture

ON

EXPERIMENTS ON THE IMMUNISATION AGAINST INFECTION OF OPERATION WOUNDS, ESPECIALLY OF THE PERITONEUM.

Delivered before the West London Medico-Chirurgical Society on June 24th, 1904,

BY JOHANN VON MIKULICZ-RADECKI, M.D., LL.D.,

PROFESSOR OF SURGERY IN THE UNIVERSITY OF BRESLAU.

MR. PRESIDENT AND GENTLEMEN,—The successful treatment of infectious diseases to-day involves in many cases a combination of the two methods of treatment discovered, the one by Edward Jenner and the other by Lord Lister. Hygienic measures based upon Listerian principles keep the cause of infection at a distance, or at least make it harmless before it can come into contact with the human organism, whilst specific preventive inoculation has for its object the rendering of individuals more capable of resisting infection. Surgery has made but little use of the principle of preventive inoculation because the multitude of variety of pyogenic micro-organisms which may infect the wound adds greatly to the difficulty of finding a practical method of inoculating against them. Another reason why the question of immunisation of wounds has not advanced is that there is not so great practical necessity as in the case of general infectious diseases because the majority of wounds are efficiently guarded from infection by antiseptic treatment. There are, however, many operations and wounds in which the principle of antisepsis becomes useless because the affected tissues or organs, owing to their physiological properties or their pathological conditions, are invaded by pathogenic organisms. The problem of effectually disinfecting the mucous membrane of the stomach and intestines in preparation for operation has not yet been solved. We possess, it is true, a number of technical expedients for limiting the danger of infection but they do not succeed with certainty in preventing it in every case. The dangerous peritonitis in serious operations on the stomach and intestines is due to the fact that the bacilli from the intestines escape in too great a number to be tolerated by the peritoneum; that is to say, the natural power of resistance of the peritoneum in the individual is not sufficient to overpower the mass of bacteria introduced. We can only diminish the danger of peritonitis at the present time by increasing the power of resistance of the peritoneum against intestinal bacteria. One means of effecting this is by producing an artificial hyperleucocytosis. As far as I know Loewy and Richter were the first to try by the injection of albumoses, especially spermin, into animals to produce a hyperleucocytosis and thereby to make the animals capable of resisting infection of pneumococci. In a similar way Jakob by intravenous and subcutaneous injection of albumose into rabbits made them proof against pneumococci and mouse septicæmia. After each injection a hypoleucocytosis occurred first and later a hyperleucocytosis. If the infection was brought about during hypoleucocytosis the animals without exception died. On the other hand, the course of the disease was influenced in the most favourable way when the infection was introduced after a hyperleucocytosis had occurred and was still increasing. Hahn succeeded in showing that during the stage of hyperleucocytosis the blood of men and dogs possessed a higher bactericidal value than normal blood. Hahn used yeast nuclein in his experiments on dogs and tuberculin in those on man. These experiments do not seem to have led to any practical result in the case of man. At any rate, Goldscheider did not entertain great hopes of the therapeutic value of hyperleucocytosis. More recently Hofbauer in Vienna has obtained favourable results in undoubted puerperal septicæmia by the administration of from five to six grammes of nuclein by the mouth. The slight therapeutic value of artificial hyperleucocytosis in disease which has already made itself evident—as, for example, in pneumonia—can be readily understood. The infected organism is at the time of the application of the remedy overpowered by the pathogenic microbes; all the engines of defence of the organism have already had to be led into the field. A still further increase through a later artificial hyperleucocytosis cannot be expected.

The question arises whether artificial hyperleucocytosis may not be of value in practice as a prophylactic. According to the above-mentioned experiments of Loewy and Richter, of Jakob and Hahn, one cannot exclude the possibility that by a partly anticipated mobilisation of great masses of leucocytes the latter may overcome the bacteria which have obtained entrance in the first instance in relatively small masses with greater ease than if the leucocytes delay their attack in force until the number and virulence of the bacteria in the tissues have markedly increased. Whether the observations of Jakob are applicable to the peritoneum had to be established by experiments on animals before they could be used upon man. Dr. Miyake of Japan, who recently worked in my clinic, undertook at my suggestion these experiments upon animals. These were carried out in the Breslau Hygienic Institute under the control of Professor Flügge. In this department of work we must note that we already had a predecessor named Salieri who in 1902 carried out experiments to increase the resistance of the peritoneum against bacillus coli infection. For this object he used small quantities of normal saline solution and found that he could increase the natural resistance in guinea-pigs by sevenfold to sixteenfold. The experiment was made three times on man in cases of laparotomy in which Salieri injected from 30 to 60 cubic centimetres of saline solution into the abdominal cavity. Salieri believed that he obtained favourable results, but in my opinion the operations carried out by him do not definitely demonstrate an increased resistance of the peritoneum. Salieri was led to undertake his investigation by the well-known experiments against cholera conducted by Issaeff in 1894. Issaeff produced in guinea-pigs hyperleucocytosis in the peritoneal transudate by intraperitoneal injections of normal saline solution, of bouillon, of nucleic acid, and of tuberculin. At the summit of this hyperleucocytosis he injected virulent cholera vibrios into the peritoneum and noted, according to the nature of the injected fluid, a more or less marked increase in the resistance of the peritoneum to the injected cholera bacilli. The most powerful reaction was obtained with nucleic acid. With an injection of one cubic centimetre of a 2 per cent. solution of nucleic acid the peritoneum was able to withstand from 13 to 17 lethal doses of cholera vibrios. Issaeff observed that the destruction of the microbes was carried out by the leucocytes of the peritoneal transudate. After only two hours the phagocytosis was evident. In the third hour free micro-organisms could no longer be found in the exudate and after five hours the process of destruction of microbes was completed. Just as Issaeff used guinea-pigs for his experiments we too selected that animal. Although the prospects of a satisfactory specific active immunisation of man against the virus of peritonitis, as has been explained, are extremely small, nevertheless we made experiments in this direction first, for in guinea-pigs the conditions are much more favourable. The bacilli coli alone are markedly pathogenic for the peritoneum of the guinea-pig, whilst the other co-exciters of peritonitis in man, especially the streptococcus and staphylococcus pyogenes, are almost entirely harmless to guinea-pigs. The experiments were carried out in this way. From half a loopful to two loopfuls of a sterilised culture were injected into the peritoneum from a strain of bacillus coli. After a definite interval, which was different in different experiments, had elapsed the animals tolerated the introduction of five loopfuls of living virulent culture and also the escape of the contents of the intestine into the abdominal cavity. The active immunisation with a strain of bacillus coli (derived from man) was thus, we may presume, able to protect against other bacillus coli strains that were accidentally present in the contents of the intestine. Nevertheless, it is possible to come across by chance strains in the case of which this does not occur. That in man we have to reckon not only with different strains of bacilli coli but also with different strains of streptococci and other pathogenic bacteria has been demonstrated above. On these grounds we did not make any further experiments for obtaining a specific active immunisation even of guinea-pigs. The further experiments consisted exclusively in producing a general increase in

resistance by hyperleucocytosis. In accordance with the procedure of Issaeff we tried the injection of various fluids into the peritoneal cavity; later, subcutaneous injections were also tried, for this form of application is better adapted to man than that of intraperitoneal injections. Sodium chloride solution (0·85 per cent.), neutral bouillon (2 per cent.), starch in physiological salt solution, and nucleic acid were used for injection. The first three solutions were only used intraperitoneally, nucleic acid subcutaneously as well. For intraperitoneal injection 2 per cent. of nucleic acid was used, for subcutaneous injection 5 per cent., neutralised nucleic acid solution one cubic centimetre of the solution was injected per 250-330 grammes body-weight. We found, in agreement with earlier experimenters, that the intraperitoneal injections of normal saline solution in the quantities above mentioned gave rise to a marked hyperleucocytosis in the peritoneal transudate. The maximum was reached after from 17 to 18 hours with an increase to about fourfold the normal leucocytosis. Still greater was the effect when the peritoneal cavity was washed out with 50 cubic centimetres of normal saline solution; in this case about two-thirds of the solution was left in the cavity. Maximum hyperleucocytosis occurred after 24 hours and resulted in five times the normal number of leucocytes. The reaction due to neutral bouillon was much less marked than that of normal saline solution. But a far more energetic action followed the 2 per cent. aleuronat mucilage. The maximum peritoneal hyperleucocytosis occurred in 30 hours and rose to between seven and eight times the normal number. A similar result followed the use of nucleic acid but the reaction was more speedy. The maximum was between seven and eight times the normal and occurred eight hours after the injection. Along with the local general leucocytosis in the blood took place but to nothing like the same extent. The maximum in one case was double the normal number of white cells. Subcutaneous injection also of 5 per cent. nucleic acid led to a hyperleucocytosis in the peritoneum as well as in the blood. The latter reached almost to the same height as with the injection in the peritoneum, the former remained far below. It reached approximately two and a half times the normal number. The important point is that here also, as in the experiments of Jakob, the injection caused a hypo-leucocytosis in all cases after half an hour to one and a half hours. With normal saline solution and with bouillon it was not considerable; with aleuronat and nuclein it fell even to one-tenth of its original amount in the peritoneal transudate. No general disturbance of any importance occurred. With the injection of normal saline solution the temperature was scarcely raised; with aleuronat and nucleic acid there was a rise of from 0·5° to 1·5° during the first hours after the injection.

After these experiments we used the injection with the above-mentioned fluids as a preliminary to an infection of the peritoneum and in the first instance a strain of bacterium coli was employed which we found to be very virulent for guinea-pigs. After it had been ascertained by 11 test experiments that the minimum lethal dose was a quarter of a loopful, the prepared animals were infected with the same strain. The infection of the peritoneum followed regularly seven hours after the preparatory treatment and therefore at a time when the hyperleucocytosis had not yet quite reached the maximum. The result was as follows. The effect of a single injection into the peritoneum of one cubic centimetre of normal saline solution was relatively weak, the power of resistance being only doubled (the infection after washing out the peritoneum with saline solution could not be employed because the bacillus coli strain at the time of the experiments in question had already lost its virulence). Much more energetic was the action of the intraperitoneal injection of aleuronat since it increased the resistance of the peritoneum eightfold. Nucleic acid was still more active, for with this the power of resistance of the peritoneum was raised from 16 to 20 fold. The subcutaneous injections of 0·5 per cent. neutralised nucleic acid similarly increased the power of resistance of the peritoneum from 16 to 20 fold. Distinctly weaker was the action of a 0·25 per cent. solution. The effect of repeated intraperitoneal injections of nucleic acid was considerably stronger. In this manner the resistance of the peritoneum could be raised to 40 times the normal. Repeated subcutaneous injections of nucleic acid led to 32 times the normal resistance. I may note in passing that none of the fluids used for injections in the neutralised form had any bactericidal action upon the bacterium coli selected for injection. It would have been very desirable to carry out the same series of experiments against the other bacteria that collaborate in the production of peritonitis in man and, above all, against the streptococcus and staphylococcus aureus and albus. Unfortunately, we found, in agreement with other people's observations, that the streptococci and staphylococci isolated from patients in our clinic were non-virulent for guinea-pigs. We therefore tried experiments upon rabbits but the same difficulty arose. It is not easy to find a strain of staphylococci which has a pathogenic effect on the peritoneum of the rabbit. We can definitely assume from the previously mentioned experiments of Kisskalt that in combating the staphylococcus pyogenes both leucocytosis and the destruction of the bacteria by the method of phagocytosis play at least as important a part as when the fight is between the organism and the bacterium coli. So far as the streptococcus is concerned the strains isolated from our clinic were insufficiently virulent for the peritoneum of the rabbit. One of the strains of the streptococcus given to us by Dr. Aronson of Berlin was, it is true, virulent for rabbits but to such a great extent that it acted as a specific bacterium of these animals. Against these highly virulent specific bacteria little effect is, as we already know, produced by a general increase of resistance by hyperleucocytosis. In these cases only a specific immunisation is of avail against infection. For these reasons the experiments could not be carried out in the way referred to. On the other hand, the experiments upon bacilli coli were supplemented in a most satisfactory manner by a series of observations which simulated the natural conditions occurring in peritonitis due to perforation. The experiments consisted in performing a laparotomy and forcing through an opening in the stomach or intestine as much of their contents as could be obtained from the immediate neighbourhood of the incision. Of five control animals which had not been previously prepared four died from peritonitis between five and 16 hours after the operation. The fifth became extremely ill but finally recovered but the amount of intestinal contents which was transferred to the peritoneum was less in this case than in the others. Ten animals were prepared. These recovered without exception. The preparation consisted in three intraperitoneal injections of nucleic acid, two injections of sterilised bacteria coli, three more injections of nucleic acid into the peritoneum, and two subcutaneous injections of neutralised nucleic acid. In each case laparotomy was performed seven hours after the injection. These experiments are such as to excite our interest in the highest degree, for by subcutaneous injections of nucleic acid it was possible to raise the resistance of the peritoneum to such an extent that even a considerable quantity of intestinal contents could be placed in the peritoneal cavity without causing damage, whilst without previous treatment an acute, rapidly fatal peritonitis followed almost without exception. This opens out a new field for the surgeon in preventing post-operative peritonitis. On three more animals a therapeutic experiment with neutralised 2 per cent. nucleic acid was tried. This solution was injected subcutaneously some time after the injection of the peritoneum with bacilli coli. It was found that when the infection had preceded the injection by six hours the peritoneum was able to stand only four times the lethal dose; whilst if the infection had taken place only one and a half hours before then the animal was able to withstand eight times the lethal dose. One animal which received 12 times the fatal dose along with the nucleic acid injection succumbed 19 hours after the infection. It therefore follows that subcutaneous injection of nucleic acid, if not used at too great an interval after the peritoneal infection, possesses a definite therapeutic value. This observation may perhaps be of value in acute cases of peritonitis from perforation.

Dr. Miyake has in three cases studied in detail the process of phagocytosis in the peritoneal exudate after the injection of bacillus coli. In two of these cases he employed preventive injections of nucleic acid into the peritoneum and in the third he used the drug subcutaneously. In all three cases an extremely active phagocytosis made itself evident half an hour after the infection. The number of microbes (in subcutaneous injection of nucleic acid) after half an hour was one-third, after one hour one-sixth, after three hours one-eighteenth, and after four hours one-hundred-and-eighth of the original number, whilst in the control animals the number of bacteria steadily increased. After 20 hours the exudate was sterile. The bacilli coli which still remained at the end of each interval of time proved on examination to be virulent in every case.

The action of the leucocyte could be very prettily watched in a microscopic preparation.

I felt justified after these promising experiments upon animals in beginning similar experiments, safeguarded by every precaution, upon man. The neutralised nucleic acid seemed to be the most suitable of the reagents which had been tried in the experiments upon animals. We first tried a ½ per cent. solution and gradually increased the strength up to 4 per cent. As a rule 50 cubic centimetres of the solution were injected subcutaneously. The injection was made under the skin of the chest in all cases with the exception of four; in these cases the upper part of the thigh was selected but owing to the inconvenient local pain this part of the body was not afterwards used. Intraperitoneal injection was tried in one case, and that the very first, but this method was entirely relinquished owing to its difficulty and the trouble it gave the patient. The 4 per cent. solution was injected twice. We altered this concentration because of the unpleasant general symptoms that were produced, for on both occasions it caused malaise and on one occasion sickness. There did not appear to be any reason, judging from the experiments on animals, for using so concentrated a solution. Thenceforth we always used the 2 per cent. solution, so that an adult man received about one gramme of nucleic acid to 75 kilogrammes of body weight, the same proportion approximately as we had tried in experiments upon animals. 58 cases in all were treated in this way between Jan. 7th and the middle of May. In 55 cases the operations were upon the stomach, intestine, or other abdominal viscera, and in three cases for extra-abdominal disease. In four cases the operations had, for some extraneous reasons, to be postponed, so that they did not take place until more than 34 hours after the injection was given. We have thus on four occasions had the opportunity of observing the effect of the injection by itself. This was the more welcome to us because we have learnt from investigations made by others that every operation, or even a simple anæsthesia, may give rise to a hyperleucocytosis and therefore does not permit of observing whether the reaction due to the injection of nucleic acid was satisfactory. This circumstance, and also our few clinical observations, enable us now to answer a number of questions on points about which we should like to have exact knowledge in reference to the working of this process in man. The following are the statements which I am now able to make. After the subcutaneous injection of neutralised nucleic acid we have constantly observed, not only in animals but also in man, a hyperleucocytosis in the blood which was almost always preceded during the first hour or so by a hypoleucocytosis. The question how high a degree of hyperleucocytosis was obtained through the injection is difficult to answer on the basis of our observations. To the earlier difficulties already referred to yet another must be added. Many of the patients showed a well-marked hyperleucocytosis even before the injection; for instance, in most cases of carcinoma of the stomach and in a few cases of cholelithiasis. It is clear that in these cases the relative increase of leucocytes cannot be so marked as in those cases where the number of leucocytes was normal. The highest value was 31,000 and the lowest 6100. Expressed in percentage with reference to the original number of leucocytes the increase of leucocytes in the blood varied from 9 to 452 per cent. In most cases we could not say whether the leucocytosis due to the injection of the nucleic acid had reached its maximum before the operation, for after the operation one could not with certainty assign a further rise to the nucleic acid. I am also convinced that where only a slight increase was observed this occurred after the operation and independently of it. We must admit this possibility because of the fact that, in the case of the four who were not operated upon during the first 34 hours, the maximum leucocytosis was on one occasion observed 24 hours after the injection. For the afore-mentioned reasons we are not in a position to make any definite statements as to the beginning of the most favourable phase of hyperleucocytosis because the operation was, in the great majority of cases, apparently performed before the commencement of this phase. Only in five cases was there a distinct fall in the hyperleucocytosis before the operation; in one of these it occurred between 13 and 19 hours after the injection. The operations were performed in four cases from five to six hours, in nine cases from nine to 12 hours, and in 12 cases from 13 to 19 hours after the injections. The experiments on guinea-pigs showed that the optimum for nucleic acid was reached seven hours after the injection. It seems to occur in man considerably later. We have therefore recently fixed the interval between preventive injection and operation at 12 hours. We believe that we thus, as a rule, follow out the instructions to operate on the rising tide of leucocytosis.

As regards the phenomena accompanying the injection of nucleic acid no serious local or general symptoms have as yet come under our observation. In the two cases in which a 4 per cent. solution had been injected the sensation of giddiness lasted but a short time. The most unpleasant factor for the patient is the local reaction. A tenderness and a slight swelling around the point of injection remain as a rule throughout the day. An intense erysipelas-like redness in two cases was seen, and it disappeared without leaving any trace after 24 hours. The only sign of reaction which appears with regularity is a slight increase in the temperature, which may be observed during the first few hours after injection (99° to 100°). In five cases the temperature remained below 98·6°, in 27 cases it rose to 100°, in six cases to 101°, in three cases to 102°, and in three cases above 102°. The rise in temperature was only in six cases accompanied by slight rigor, and even this was of short duration. The urine showed no pathological constituents after the injection and the patient's general condition was not in any other way impaired. Even the patients whose temperatures had risen suffered no discomfort thereby and maintained good appetites.

You will now ask me how far the immediate object of the injection of nucleic acid was attained, and how far the preparation of the cases had a favourable effect upon the course of the operation. The number of my experiments is not sufficient to permit me to form a definite judgment upon these points and to give an unguarded reply. We cannot in the case of man, as we do in that of the lower animals when introducing infective material into the abdominal cavity, give a certain multiple of the minimum lethal dose in order to see how far a preventive treatment has succeeded. We set all our apparatus in action, in spite of preventive inoculation, to reduce infection to the minimum. Since this method fortunately succeeds in the majority of cases, even without preventive inoculation, in guarding the patients from a fatal peritonitis a small number of satisfactory results do not prove much; but, on the other hand, one or two unsatisfactory results most certainly cannot condemn the method, for this method gives no absolute certainty like a specific immunisation but only increases the natural immunity and this may in certain circumstances, even when increased to thirty-fold, nevertheless be insufficient. I have, however, the impression that the cases hitherto treated have given more favourable results, not only in the number of cases that recovered but also in the progress of the individual cases, than the analogous cases of earlier date where the operation was performed without this preparation. In ten cases of resection of the stomach for carcinoma nine recovered, six of them without the slightest complication. The progress was marked by a smoothness that was quite exceptional before this treatment was adopted. Two cases which presented exceptional difficulty in the removal of the carcinoma did undoubtedly within 24 hours develop peritonitis with a pulse up to 160, which according to our usual experience foretold the most dismal prognosis. The patients fortunately survived this peritonitis. In the ninth case which recovered the progress was disturbed from the fourth day by broncho-pneumonia. The tenth case died; after seven days of uninterrupted progress he developed pneumonia to which he succumbed three weeks after the operation. Of the remaining operations I should like to refer first to 22 cases of gastro-enterostomy and entero-anastomosis, 12 of which were for carcinoma. Of these cases 19 recovered and three died. In all three cases death was most certainly not due to post-operative peritonitis, but in one case to perforation of an ulcerated carcinoma of the stomach two weeks after the operation, in another case to continued hæmorrhage from a carcinoma of the stomach 16 days after the operation, and in the third to peritonitis arising from a tuberculous granuloma in the intestine four weeks after operation. Of six cases of resection of the intestines at one operation four recovered and two died. In one case death occurred from collapse on the second day after a very prolonged operation of double resection for carcinoma; in the other case, where the injury was a bullet wound, death took place on the tenth day from hæmorrhage from the vena cava. In neither of the cases was there any peritonitis. One case of opening the stomach and stretching the cardiac orifice, performed

on account of spasm, recovered. So also did six cases of operation on the bile-duct, seven other operations upon abdominal organs without opening the intestinal tract, and three extra-abdominal operations. The last to be mentioned are two cases of nephrectomy which were treated before the operation with nucleic acid. In both cases in order to remove the suppurating kidney the peritoneum had to be widely opened. One case recovered; the other died 12 days after the operation from haemorrhage from the renal artery. In this case, too, there was no peritonitis. We therefore have 45 laparotomies in which the abdominal cavity was exposed to infection by the contents of the stomach or intestines or by some other infectious secretion. 38 of these cases recovered and in none of the seven fatal results was peritonitis the cause of death.

While relating my clinical experiences I have referred to nucleic acid only as a method of producing leucocytosis, but we have also used in most cases, and especially in severe operations upon the stomach and intestines, a second means which, according to experimental observations, is able to increase considerably the power of resistance of the peritoneum—I mean the intraperitoneal infusion of normal saline solution. Departing from my earlier practice I have used more and more during the last two years free irrigation of the peritoneal cavity with warm normal saline solution in all laparotomies in which the peritoneum runs some risk of infection.

The Milroy Lectures

ON

DEATHS IN CHILDBED: A PREVENTABLE MORTALITY.

Delivered before the Royal College of Physicians of London on Feb. 25th and March 1st and 3rd, 1904.

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LECTURE II.[1]

Delivered on March 1st.

THE ETIOLOGY OF PUERPERAL FEVER.

MR. PRESIDENT AND GENTLEMEN,—Puerperal fever has been common to lying-in women in all ages and climates and is described by Hippocrates 430 B.C., the first writer on the art of healing. Hippocrates, who contributed excellent clinical histories of the disease, did not only consider it as a dangerous disease but as a mortal one.

> "Morbus hic lethalis, et paucæ effugere possunt;
> Si mulieri pregnanti fiat in utero erysipelas, lethale est,"

and such were the views expressed by Celsus and Galen. Arabian physicians, such as Avicenna, as well as the physicians of the Middle Ages, have nothing more to say than that women in childbed sometimes took fever which led to their death. The medical writers of the sixteenth and seventeenth centuries go rather more into particulars. According to Hirsch it was Willis who first looked upon it as a disease which was different from other febrile processes, and he gave it the name of "febris puerperarum," and he went so far as to connect its origin with laceration of the uterus during labour and to refer it to a "miasma venenatum." By one writer the obstetric art was described as "only fit for fools and old women," and it was practised by them mostly until the establishment of a College of Physicians in London in 1518. In 1560 Thomas Raynold published his "Byrth of Mankinde." From the time of Thomas Raynold to that of Ströther, who wrote in 1716 and first termed it puerperal fever, many eminent men have written about puerperal fever, but their views differed but little from those of former writers. Thomas Cooper (1766) looked upon the disease as a truly dangerous and perplexing malady and considered that it proceeded generally from violent affections of the mind, such as grief, despondency, and the like.

With the exception of the statement that the disease was epidemic at Thasos in the time of Hippocrates the earliest epidemiological notice is one relating to the Hôtel Dieu of Paris in 1746, when it is said that of 20 patients who were seized with the disease scarcely one escaped. It is also pointed out that the hospital was crowded with patients at the time, an unusually large number of them being cases of wounds, and the ventilation of the wards was extremely defective and it is expressly stated that the lying-in department was directly over the wards occupied by the surgical cases. In 1830 Cruveilhier writes to the same effect on the epidemic of the Paris Maternité.

Hulme (1772) declared that the disease should be equally dreaded with the plague itself but did not consider it infectious. Denman (1788), according to Hirsch, was the first to allege that childbed fever was sometimes carried by medical men and midwives who had been in attendance on puerperal fever patients to other lying-in women.

In 1779–82 puerperal fever prevailed in an epidemic form at Aberdeen.[2] We are told in connexion with this epidemic that it prevailed principally among the lower classes of women but that women in the higher walks of life were not exempted; that it extended to the suburbs and contiguous country, where it proved as fatal as in the heart of the city. About 80 cases were attended by Gordon himself. To use his own words: "This disease seized such women only as were delivered or visited by a practitioner, or taken care of by a nurse, who had previously attended patients with the disease. In short, I had evident proof of its infectious nature and that the infection was as readily communicated as that of small-pox or measles and operated more speedily than any other infection with which I am acquainted." The infection was carried by a midwife to the country parishes of Nigg and Fintray and there also spread alarmingly.

The fever was epidemic in Leeds and its vicinity in 1809–12 and William Hey, jun., in his treatise on the epidemic tell us that it prevailed principally among the poorer classes of women but in the beginning it affected chiefly those in the higher stations of life and in its progress they were equally liable to its attacks. Its origin and spread could not be traced to any climatic conditions and it prevailed equally in both hot and cold weather. Dr. Hey writes: "It is somewhat remarkable that I have scarcely known an instance, in my own practice, of this disease coming on after præternatural delivery, or even a particularly hard labour. I do not mean to imply that such cases were more exempt from it than others, but so it has happened; and the fact shows that it was independent of anything untoward in the labour. It has, on the contrary, most frequently occurred, within the compass of my experience, after the most easy and most natural labour." This is entirely in accord with my own observations. I have known a medical man to go straight from a puerperal fever case to a confinement where the operation of turning was necessary. He introduced his hand into the uterus and the patient made a good recovery and was not infected with puerperal fever.

Armstrong (1813–14), in his description of the epidemic in Northumberland, Durham, &c., writes: "It is a singular fact that in whatever place the fever in question occurred it was principally limited to the practice of one accoucheur in the place." He further remarks: "This complaint, as it was presented to me, generally occurred about 24 to 30 hours after delivery. It did not seem to depend upon any difficulty of labour for in most of the women in whom it occurred parturition was remarkably easy. The first case at Sunderland occurred in January, 1813, and by the spring of the same year the disease had assumed formidable proportions." 43 cases occurred from Jan. 1st to Oct. 1st and of these 40 were treated by one medical man or his assistant, the remainder having been seen by three different accoucheurs. At Chester-le-Street, about nine miles from Sunderland, several cases occurred to a certain medical man, whilst a Mr. "N." of the same place only met with a solitary instance now and again. One accoucheur lost seven patients in a town not far from Newcastle-on-Tyne, and it is stated that the disease was confined to the patients of that practitioner and in the preceding year in like manner to those of one midwife in Newcastle itself. In May, 1813, the disease appeared at Alnwick and was confined to the practice of two medical men. Though one midwife who

[1] Lecture I. was published in THE LANCET of June 18th (p. 1701) and 25th (p. 1772).

[2] Gordon's Essay on Puerperal Fever at Aberdeen.

had a considerable increase of business had not a single case of the disease, another midwife, however, who had been about two days in the house of a lady dying from puerperal fever, went into a district about eight miles away and there delivered several women, nearly the whole of whom were attacked by puerperal fever. In this particular the epidemic strikingly corresponded with that of Dr. Gordon in Aberdeen, for he distinctly mentions that the disease occurred to certain individuals, whilst it was entirely unknown in the practice of others living in the same neighbourhood and he naturally attempted to account for this singular circumstance that the practitioner conveyed the contagion from patient to patient. The fever existed for more than two years in different parts of Durham and Northumberland. The epidemic really commenced in the neighbourhood of Stockton-on-Tees in 1811 and it spread to Newcastle-on-Tyne and Sunderland, afterwards to Chester-le-Street, and lastly in and about Alnwick. During its prevalence a great number of women died from the disease, but the number is not given and Dr. Armstrong says, "and this I was creditably informed, every patient perished who was not bled in the beginning."

Armstrong was of opinion that puerperal fever was different from "the weed," "after pains," and "hysterites." The symptoms are very well described by him: "Abdominal pain or soreness, anxious breathing, unusual frequency of pulse, increased temperature, anorexia, prostration of the vital and voluntary powers, with an unnatural condition of the excrements are among the chief of the pathognomonic signs of the puerperal fever." It is well known that unmarried women do not recover so well as married women, the mental irritation attendant upon their condition considerably increasing the febrile excitement and thus accompanying the danger. Armstrong dealing with prevention says: "When puerperal fever is epidemic the accoucheur should make it a point of duty to have the apartment of the woman whom he is engaged to attend properly cleaned and ventilated before confinement; to prevent nurses and other persons who have been in contact with those affected from waiting upon or going near any patient about to be delivered; to pay the most scrupulous regard to the cleanliness of his own person, using daily ablutions of the whole body and frequent changes of linen and dress."

Ferguson in 1839 gave his observations during 12 years on 205 cases under his care at the General Lying-in Hospital, London (Table XXIII.). He classifies puerperal fever into four groups, the fourth of which is most dangerous, and he observes: "When this fourth form of puerperal fever is prevalent and characteristic of the epidemic 1 in every 3 dies in the London hospitals under any treatment and if the complications be many this mortality will be still increased, and the most judicious and the most humane act is to shut up these receptacles forthwith." Such, indeed, was the experience of William Hunter who used to say of puerperal fever cases: "Treat them in what manner you will at least three out of every four will die." Such was the experience of those who witnessed its plague-like ravages in the continental hospitals and such was that of Ferguson who was of opinion that this form of puerperal fever existed in hospitals alone. Ferguson further observes: "I believe that the single chamber of the pauper is more wholesome than the spacious ward of the hospital patient; while in private practice, among the well-housed and well-nourished, the milder forms are the commonest." This was also the opinion shared by most others at that time.

It would be interesting to give other instances, such as those recorded by Storrs (1842) in connexion with the Doncaster epidemic; by Blackmore (1831) in reference to an epidemic at Plymouth; by Simpson (1851) in connexion with some fatal cases at Edinburgh; Litzmann (1841–42) in connexion with an epidemic at Halle; and by Martin (1856); Schulten (1859); Netten Radcliffe (1865) in connexion with the Crickhowell epidemic; and so on. All these point in the same direction and should serve to impress upon us that the question of personal responsibility cannot be too strongly urged upon midwives and medical men.

It was Semmelweiss (1846) who founded the doctrine of the septic nature of puerperal fever by observing the frequency with which it followed the exposure of puerperal women to cadaveric putrefaction. It was this observation of Semmelweiss and the analogies of puerperal and surgical fevers first pointed out by Simpson, together with the investigations of Pasteur, Davaine, Rindfleisch, Koch, and others on the part played by micro-organisms in disease that led up to Lord Lister's system of antiseptic surgery. According to Priestley[2] it was Stadfelt of Copenhagen (1865) who first applied antiseptic method to puerperal uses in the maternity hospital of that town. He used carbolic acid; but later Tarnier in Paris introduced corrosive sublimate as being a more efficacious germicide. Guided by the progress of antiseptic surgery a new departure was inaugurated in Germany and then commenced aseptic, as distinguished from antiseptic, midwifery. The antistreptococcic serum when further elaborated may become an important factor in the prevention as well as in the cure of puerperal fever.

I will now relate some of my experiences in connexion with epidemics of puerperal fever which I was fortunate enough to have the opportunity of investigating. I was appointed medical officer of health of Glamorgan in December, 1892, and arrived in time to investigate an epidemic of this malady which had been for some time raging in two adjoining valleys included in the Garw and Ogmore urban district and situated in the centre of our coalfields. The valleys in question run north and south and are typical Glamorgan mining valleys—long, crooked, deep, and narrow. Their higher parts are densely populated on both sides of the black and highly polluted streams that run through each of them. Most of the houses are newly built and 16 or 18 years ago there was only an occasional farmhouse to be seen. The ridges of mountains on either side rise to a height of from 800 to 1200 feet above the sea level. The population of the two valleys numbers some 14,000, consisting for the most part of colliers and their families, with some tradesmen and artisans to minister to their wants. The houses are built of good quarried stone and are dry and comfortable in the majority of cases. There

TABLE XXXV.—SHOWING THE INFECTIOUS SICKNESS AND MORTALITY IN THE GARW VALLEY FROM 1889 TO MARCH 1ST, 1893.

Year and locality.	Population census, 1881.	Population estimated.	Registered births.	Small-pox.	Scarlet fever.	Diphtheria.	Membranous croup.	Typhus.	Enteric or typhoid fever.	Relapsing.	Continued.	Puerperal.	Cholera.	Erysipelas.	Measles.	Whooping-cough.	Diarrhœa or dysentery.
1889... Ogmore Ward	6,893	—	—	0	80(19)	0	0	0	16(6)	0	0	4	0	0	0	30(5)	4(3)
Garw Ward				0	180(28)	0	0	0	8	0	0	5(5)	0	0	84	20(3)	100
1890... Ogmore Ward	6,893	12,500	548	0	12(2)	0	0	0	19(5)	0	0	8(3)	0	3	(8)*	(8)*	(4)*
Garw Ward				0	175(14)	0	0	0	4	0	0	2	0	1(1)	(2)*	(3)*	(1)*
1891... Ogmore Ward	13,080	13,080	605	0	27(2)	0	0	0	6	0	0	8	0	2	(1)*	(2)*	
Garw Ward				0	32(2)	0	0	0	5(1)	0	0	6(2)	0	0	(14)*	(10)*	(2)*
1892... Ogmore Ward	13,080	15,080	675	0	23(3)	0	0	0	36(8)	0	0	6(3)	0	2(1)	(1)*	(1)*	
Garw Ward				0	41(5)	0	0	0	14(1)	0	0	10(5)	0	12(1)	—	—	(2)*
Jan. 1st, 1892, to March 1st, 1893 ... Ogmore Ward	—	—	—	—	—	—	—	—	—	—	—	3(4)					
Garw Ward	—	—	793	—	—	—	—	—	—	—	—	28(12)					

NOTE.—The number of deaths in each case is given in brackets. * No return of cases.

[2] Transactions of the International Congress of Hygiene and Demography, 1891.

TABLE XXXVI.—*Giving Particulars of Cases of Puerperal Fever at Pontcymmer in the Garw Valley, from May, 1892, to March 1st, 1893.*

Initial of patient.	Date of confinement.	Primipara or multipara.	Midwife.	Duration of illness.	Results.	Remarks.
	1892.					
S.	May 14th.	M.	Mrs. P.	4 weeks.	R.	Fatal scarlet fever next door. House clean.
R.	,, 23rd.	P.	,,	4 weeks.	D.	—
L.	June 13th.	P.	,,	7 days.	D.	—
D.	,, 23rd.	P.	,,	9 days.	D.	Scarlet fever a few yards away.
R.	July 10th.	M.	,,	—	R.	—
E.	Sept. 17th.	P.	,,	—	R.	—
H.	Oct. 31st.	M.	Mrs. T.	9 days.	D.	Drainage defective.
W.	Nov. 7th.	?	Stranger.	4 weeks.	D.	—
D.	,, 28th.	?	Mrs. S.	—	R.	Drainage defective.
D.	Dec. 6th.	M.	Mrs. P. 2.	—	R.	,, ,,
J.	,, 7th.	M.	,,	—	R.	,, ,,
J.	,, 15th.	M.	Mrs. P.	—	R.	Scarlet fever in the house a short time previously.
R.	,, 23rd.	M.	Mrs. T.	7 days.	D.	Disease developed the second day. Erysipelas upon the baby and a man in the same house.
	1893.					
E.	Jan. 1st.	P.	Mrs. P.	—	R.	Overflowing closet in the basement.
Ll.	,, 7th.	M.	Mrs. T.	—	R.	Insanitary surroundings.
D.	,, 20th.	M.	Mrs. P.	—	R.	—
—	March 3rd.	P.	Mrs. P. 2.	3 days.	D.	Drainage defective.
S.	,, 3rd.	—	Mrs. R.	—	D.	Insanitary closet in the basement.

are but a few privies, most of the houses having been in recent years supplied with pans and syphons, and connected with the public sewers. The water-supply is good and plentiful. The incidents of the epidemic were briefly as follows.

Puerperal fever had been prevalent in this district for many years; it is said to have been endemic in the Garw Valley. The number of cases that were reported or came to the knowledge of the medical officer of health for the period 1889–March 1st, 1893, were in—

Year.	Number of cases.	Recovered.	Died.
1889	9	4	5
1890	10	7	3
1891	14	12	2
1892	16	8	8
1893 (Jan. 1st to March 1st)	18	10	8

so that during January and February, 1893, 18 cases occurred and eight proved fatal. In 1892 the number of cases was 16, with eight deaths; in 1891 14 cases with two deaths; in 1890, ten cases with three deaths; and in 1889, nine cases with five deaths; making, in four years and two months, 67 cases, with 41 recoveries and 26 deaths. From Jan. 1st, 1892, to March 1st, 1893, 34 cases occurred; of the 26 in the Garw Valley, 12 were fatal; and of the eight in the Ogmore Valley, four were fatal. During this period (14 months) there were 793 births registered, showing a death-rate of 20·1 per 1000 registered births as compared with a mean rate of 2·5 for England and Wales. Table XXXV. shows the number of other infectious diseases that occurred in the district from 1889 to March 1st, 1893.

Of the 18 cases at Pontcymmer (Table XXXVI.) seven were primiparæ and five of them were fatal. Nine were attended by the same midwife and of these three were fatal. In six instances the drains were defective; in two the surroundings were insanitary.

Of the 11 cases at Blaengarw six were primiparæ, of whom four died. Four cases were attended by one midwife and four by another. Of the six that proved fatal all were natural and easy labours, and three, at least, were in young women. (Table XXXVII.)

TABLE XXXVII.—GIVING PARTICULARS OF CASES OF PUERPERAL FEVER AT BLAENGARW, IN THE GARW VALLEY, FOR A PERIOD OF TWO YEARS.

Initial of patient.	Date of confinement.	Primipara or multipara.	Midwife.	Duration of illness.	Results.	Remarks.
	1891.					
D.	March 3rd.	M.	Mrs. Ll.	3 weeks.	R.	Miner's wife. House clean. Natural labour. Second day rigor and temperature 102° F. Third day temperature 104°. Severe abdominal pain and tenderness. Temperature normal on the twelfth day. Mrs. Ll. also attended another case at the same place, which also made a good recovery. Medical man present at the birth of the child.
G.	,, 8th.	M.	Mrs. T.	8 days.	D.	Natural labour. Rigor third day. No abdominal tenderness. Lochia sweet. Death eighth day. Temperature 108° F. No source of infection could be traced. House clean.
J.	Nov. 21st.	M.	Mrs. T.	2 weeks.	D.	Wife of grocer. House clean. Natural labour. Rigor seventh day. Temperature varied from 102° to 104° F., but at last went up to 107° a little before death. Cause of death, peritonitis.
	1892.					
M.	May 28th.	P.	Mrs. Ll.	4 weeks.	R.	Instruments used. Severe post-partum hæmorrhage. Rigor third day; temperature 105° F. same evening. Slight abdominal pain and tenderness. Discharge foul.
J.	Nov. 16th.	P.	Mrs. T.	7 days.	D.	Age 23 years. Easy labour. Rigor second night. Temperature 103° F., with abdominal tenderness and cessation of lochia. None of the usual sources of infection could be traced.
B.	,, 17th.	P.	Attended by a medical man.	7 days.	D.	Aged 21 years. Easy labour. Rigor second night and temperature of 102·5° F.; great tenderness over uterus and foul lochia although she had been washed with antiseptic lotions. This case was peculiar for its terrible and persistent vomiting. Her father, who lived in the same house, was then suffering from a large wound of the leg. House clean.
M.	Dec. 20th.	M.	Mrs. T.	—	R.	Forceps delivery. Rigor and high temperature on the fourth day which yielded to usual treatment.
M.	,, 24th.	P.	Mrs. Ll.	7 days.	D.	Easy labour. Age 20 years. Fifth day rigor, high temperature (104° F.), tympanites, and abdominal tenderness. Lochia, although profuse, were very foul; green vomiting. Died on the seventh day; hyperpyrexia. The midwife in this case had attended a fatal case about a fortnight before this one, but in the interval had, so she said, thoroughly washed and boiled all her clothes at the wish of a medical man.
H.	,, 30th.	M.	Mrs. R.	14 days.	R.	Forceps delivery. Rigor and high temperature on the third day. Temperature normal on the fifth day.
D.	,, 31st.	P.	Mrs. Ll.	14 days.	D.	Miner's wife. Natural labour. Progressed favourably till Jan. 7th, when she sat up in bed to nurse the child. Rigor following morning, with a temperature of 102° F. Great swelling and abdominal tenderness. Temperature 102°. Jan. 14th, temperature 107°. Death took place from peritonitis. House very clean. Slight post-partum hæmorrhage.
	1893.					
W.	March 4th.	P.	Her mother.	—	R.	Easy labour. Rigor and high temperature on the second day. History of erysipelas in the same house 12 months previously.

The Nantymoel cases (Table XXXVIII.).—D. was confined in a house where the whole family, six in number, had suffered from scarlet fever. The last was convalescent at the time of her confinement. On the second day symptoms of puerperal septicæmia were developed with a high temperature and foul discharge. The uterus was washed with a solution of perchloride of mercury and in a week the patient was convalescent and made a good recovery. About six weeks afterwards E. was delivered of twins. There was a severe rigor on the second day accompanied by a high temperature. In a few days symptoms of peritonitis developed and the patient died on the eighth day. She was attended by H. L.

TABLE XXXVIII.—*Giving Particulars of Cases at Nantymoel and Tynewydd (almost adjoining), in the Ogmore Valley.*

Initial of patient.	Date of confinement.	Primiparæ or multiparæ.	Midwife.	Duration of illness.	Results.	Remarks.
	1892.					
A.	June 6th.	—	Mrs. A. W.	—	R.	—
B.	,, 8th.	—	Mrs. H. L.	—	R.	—
C.	August 2nd.	—	Mrs. L.	—	D.	The midwife in this instance was suspended for three months but had since attended 30 cases without ill effects.
D.	Oct. 10th.	—	Mrs. H. L.	—	R.	—
E.	Nov. 10th.	—	,,	—	D.	—
F.	,, 13th.	—	,,	—	D.	Mrs. H. L. was stopped attending for six weeks, but she afterwards attended three cases without ill effects.
	1893.					
J.	Jan. 8th.	—	,,	—	D.	—
H.	,, 21st.	—	,,	—	D.	Mrs. H. L. was stopped attending for nine weeks but had since attended six cases without ill effects.
I.	,, 27th.	—	Mrs. A. W.	—	R.	—
K.	,, 27th.	—	,,	—	R.	—

Three days after the death of E., F. was confined in the same street and attended by the same midwife (H. L.). A rigor occurred on the second day with signs of peritonitis on the third. She rapidly got worse and died on the sixth day. During the interval between the first and second cases (above recorded) H. L. attended several cases without any signs of septicæmia. After the third case she was debarred from attending for six weeks. At the end of six weeks she attended another case. This patient was very ill three days before her confinement and died three days after delivery from violent peritonitis. Four days afterwards H. L. attended another woman who made a good recovery in due time. This same midwife went on attending confinements for three weeks without any ill effects until she attended H. This patient had a rigor on the second day, with a temperature of 101° F. On the morning of the third day the temperature was 102°, and by 4 o'clock of the same day the temperature was 107°. She became unconscious and died at 7 o'clock the same evening. After the above case the midwife was debarred attending up to March, 1893.

During the same period of about five months, A., I., and K. were attended by A. W., another local midwife. All these recovered. This midwife had attended many cases since and without any ill effects. During the same period, and indeed during the year, several cases of confinement occurred and were attended by three different midwives, where a slight rise of temperature was manifested, but they recovered. Influenza was prevalent at the time. It was a very common occurrence in this practice to have slight cases of the so-called puerperal fever, but generally they were easily controlled by antipyretics and disinfecting injections, or, in fact, without any treatment whatever.

The notable features of the Ogmore cases were that: (*a*) the fatal cases (at Nantymoel) were attended by the midwife H. L.; (*b*) all the cases attended by the midwife A. W. recovered; and (*c*) during the interval between the first and second fatal cases H. L. attended several cases without the slightest ill effects. The midwife A. W. did not cease attending cases for even a day and, whilst H. L. was abstaining, A. W. probably attended a case daily on an average. Two of her cases were severe puerperal fever and both of the patients recovered.

The above statements show that puerperal fever has prevailed to an abnormal extent in this district for some years—that it was endemic and never entirely absent from the locality. I was informed by some of the oldest practitioners in the Garw Valley that cases of this disease have occurred there at intervals for 13 years and that it is, like typhoid fever, indigenous in some of the localities. I have given an outline of the sanitary condition and local peculiarities of the district, and I would only add that the two valleys are totally distinct and separated by high hills of Penant sandstone and that there is no intercourse between the midwives of the one and those of the other. Notwithstanding this fact the disease has been prevalent in both valleys.

It is well known that defective sewerage and typhoid fever go hand-in-hand. This is clearly exemplified by the fact that Pontycymmer (in the Garw Valley) and Tynewydd (in the Ogmore Valley), the most insanitary spots throughout the district, suffer the most from typhoid fever. I should also mention that these localities are the most densely populated. It is possible, if not probable, that there might exist a close relationship between puerperal fever and of insanitary atmosphere, containing sewer gases, arising from untrapped and badly ventilated drains or sewers or from the soil which is often damp and boggy and impregnated with excrement and decomposing vegetable matter. Of this I cannot speak.

Again, scarlet fever is believed by some to have intimate relationship with outbreaks of puerperal fever. Scarlet fever has been prevalent in these valleys for years, but the accompanying tables do not conclusively show the connexion, if any, that exists between it and puerperal septicæmia. I have notes of several cases where confinements have happened in houses at the time infected with scarlet fever and the experience of one of the medical practitioners (which coincides with my own) may be summarised thus: 1. That the majority of cases confined in houses infected with scarlet fever escape entirely. 2. That occasionally the mother takes scarlet fever but does not develop any puerperal symptoms such as rigors, high temperature, abdominal tenderness, fœtid lochia, &c., and generally recovers.

The following are noticeable facts also: 1. That not a single case of diphtheria had been reported to the medical officer of health during the last five years. Indeed, I am informed that the disease is not known in these valleys. 2. That primiparæ are more liable to be attacked than multiparæ. Out of 12 instances in which primiparæ suffered there were 8 fatal cases, whilst out of 14 where multiparæ suffered there were only 4 fatal cases. 3. That the fever more readily attacks, and is more fatal in, cases of easy and natural labours. 4. That the above statistics and history of cases do not afford conclusive evidence of the relationship, if any, between this disease and other zymotic diseases, such as erysipelas, measles, whooping-cough, and diarrhœa. 5. That a number of cases attended by infected midwives escaped entirely. 6. That the infection in this disease is most subtle, persistent, and portable, and more difficult to get rid of than in almost any other disease, or probably appears to be so, owing to the susceptibility of the puerperal woman to such an infection. 7. That all the fatal cases in one locality were attended by one and the same midwife. 8. That midwife P. attended six cases within a space of four months and that three of these (primiparæ) terminated fatally.

I have already mentioned that nearly all the confinements in this and similar districts in the county are attended by midwives—professed midwives, as they are called, whose knowledge of sanitation, antiseptics, and infection is *nil*. I have interviewed a few of the above midwives who frankly admitted that they were ignorant that they might have been the means whereby the disease was spread, and that up to a recent date the necessary precautions against the spread of the disease were not observed for the simple fact that they were ignorant of the danger connected therewith. Such a condition of affairs is not unique—viz., that midwives spread puerperal fever broadcast and are not interfered with. Even

local authorities require to be looked after. Until recently neither the bedding, clothing, nor rooms of puerperal cases, whether fatal or otherwise, were in any way disinfected. Here, again, such a condition of affairs is not unique and I can point to districts where no disinfection whatever is practised or when attempted it is a sham, and a very dangerous sham.

In connexion with this epidemic I made the following recommendations to the sanitary authority in whose district it occurred. They were carried out with the result by now that scarcely ever does a case of puerperal fever occur.[4] 1. That each midwife after attending a case of puerperal fever should not be allowed to attend another confinement for two months. 2. That the bedding and clothing of each puerperal patient should be destroyed by burning, and that the bedrooms should be properly disinfected by competent persons. The authority possessed no disinfecting apparatus. 3. That until the midwives are better instructed, trained, and registered, the disease must go on in such a neighbourhood as this.

Do not these facts show that the fever, whatever its origin may have been, was spread by these midwives? The fact that puerperal fever results from the attendance of females who have been engaged in laying out and ornamenting the cadavera of persons who died from infectious maladies is well exemplified by the following cases which were reported to me in 1893 by Mr. T. J. Dyke, medical officer of health of Merthyr.

1. Cases attended by midwife Alpha: (*a*) M. W., aged 40 years, became ill through eating decomposed tinned salmon. She died on April 18th; the cause of death was certified as "peritonitis." Her body was laid out by the above midwife. (*b*) E. I., aged 38 years, was confined on April 19th and was attended by the same midwife. She was notified as being ill of puerperal fever and died on May 5th. The residences of these two persons were in the same locality in a healthy open street on the hill-side. The sanitary arrangements and water-supply were good.

2. Cases attended by midwife Beta: (*a*) E. D., aged 38 years, who was confined on April 10th, was attended by this midwife. She was notified as being ill of puerperal fever. On the 15th she died and on the 18th the body was laid out by midwife Beta. (*b*) E. L., aged 30 years, was confined on April 19th, being attended by midwife Beta. She was notified as being ill of puerperal fever and died on April 22nd. The body was laid out by midwife Beta. (*c*) C. T., aged 23 years, was confined on April 28th, being attended by midwife Beta. She was notified as being ill of puerperal fever on the 30th and died on May 3rd. The body was laid out by midwife Beta.

The residences of the last three persons were a considerable distance from all those attended by midwife Alpha. The sanitary arrangements and water-supply were good. The midwives were warned not to attend cases until their clothing and persons had been disinfected. These warnings were disregarded and I do not consider them sufficient.

It is recorded in *Public Health* in 1893 that one man lost three wives from puerperal fever and when the case was investigated it was found that all three were confined in the same bed which had not been disinfected. I once traced a case to an infected bed where a child suffering from scarlet fever had died six months previously and which had *not* been disinfected in the meantime. Neither the medical attendant nor midwife had been near a case of this or any other fever for months. Once I came across a midwife with a sloughing ulcer on her leg in attendance on a patient suffering from puerperal fever and I should not be surprised, though I cannot prove it, that the disease had its origin in this ulcer. I have seen women confined on several occasions in scarlet-fever and diphtheria-stricken houses without any untoward symptoms whatever. In 1869 I wrote a short article[5] in which I gave it as my opinion that this was the *rule* and so far I have had no occasion to alter it. I could adduce other similar instances in abundance but it is unnecessary and tedious.

THE BACTERIOLOGY OF PUERPERAL INFECTION.

The bacteriological aspect of the question of puerperal infection at first sight appears simple and such indeed it may be when an obvious source of infection can be detected and the absence of imperfect application of antiseptic and aseptic measures is coincident with such infection. A few cases of puerperal fever occur from time to time in which the source (external) of infection is incapable of detection and the untoward event is usually put down to infection during the praxis of the medical attendant or his assistants. On the other hand, cases occur especially among the lower classes when the conditions are such that the marvel is that puerperal infection is not the uniform complication of the puerperium, and this the more when the poly-microbic origin of the infection is considered. The first question that arises for discussion in a consideration of infections of the genital tract of the lying-in woman is, How far does the genito-urinary tract show evidence of infection before delivery? As regards the urethra Savor found this passage to be sterile in but 27 per cent. of pregnant women and in from 35 to 40 per cent. of non-pregnant women.

The staphylococcus albus was present in half the infected cases, and in 6 per cent. of infected pregnant women virulent streptococci were found in some cases appearing for the first time after delivery, though there were no clinical symptoms coincident with their appearance. Menge and Krönig, from an examination of the vaginal and cervical secretions in the pregnant and non-pregnant, express the opinion that under normal conditions the vagina, cervix, uterus, and tubes are sterile in pregnant and non-pregnant women, and that the puerperal uterus under normal conditions is absolutely free from micro-organisms and that the converse is a pathological condition.

Döderlein, Franque, and Ott support Menge and Krönig and insist on the sterility of the uterus, cervix, and upper portion of the vagina, ascribing such a condition to the bactericidal action of the fluid secretions present, which obtains immunity from infection for these parts under normal conditions. For a successful infection of the genital tract to take place during the puerperium it is laid down that such must result from the introduction of germs from without, those organisms which may already be present at the vaginal orifice representing types which are attenuated by the action of the lochial secretion as it flows away. Such a view can but have a good effect, apart from its correctness, by making it of the first importance to pursue an aseptic procedure in all measures that may be required during parturition and the puerperal period. On the other hand, Stahler and Winckler, Burckhardt, and Jeannin, especially the latter, have found that in the normal lying-in woman the lochial secretion as taken from the cervix or uterus may contain pathogenetic germs without giving rise to clinical symptoms. Jeannin, as a result of a review of the work of others and from his own work, comes to the conclusion that at birth the uterus is always sterile, but that under certain pathological conditions (endometritis) an infection may be present which, comparatively quiescent during the period of gestation and giving rise to pathological changes in the placenta, may after delivery run a more acute and fatal course. He further states "that after delivery, for normal cases, the sterility of the uterus persists for at most a few days and certainly not after the first week of the puerperium. Auto-infection is always possible from the lower portion of the genital tract since under normal conditions this portion harbours a microbic flora that may under suitable conditions give rise to an infective process by transport to the exposed uterine surface. A serious source of infection is from the intestinal tract which during the lying-in period must play an important part in reinfecting the vulvo-vaginal portion." It is probable that Jeannin takes a more exaggerated view of the degree of uterine infection than one would be disposed to accept; it seems to err as much on one side of the question as those who on the other side insist on the sterility of the puerperal genital tract. It would not be unjustifiable to take up an intermediate position and to admit a certain very low percentage of cases of auto-infection which, however, is much higher than would correspond to the incidence of puerperal fever or the secondary local inflammatory complications that arise during the puerperium. The discrepancy between the admitted percentage of non-sterile uterine surfaces and the percentage of local or general infections that occur may with reason be placed to the credit of the antiseptic precautions of the accoucheur and the well-trained nurse, and in part to the different degrees of susceptibility to infection of various individuals.

The successful reduction of the percentage incidence of

[4] You must not think that I am not a believer in antiseptics—far from it. I made the recommendation because I believed that no one would take the trouble to instruct these midwives how to disinfect themselves.

[5] Brit. Med. Jour., 1869.

puerperal fever will depend on how far antiseptic and aseptic measures are carried out in a systematic manner, though however thorough it may be the personal equation in a very few cases must not be forgotten. Auto-infection plays a part in some cases and infection from without in others, and although the infection cannot be traced in all cases there can be no question that the strictest asepsis in all local procedures should be practised on the part of the practitioner and septic conditions should be treated by the application of antiseptic treatment. The final word on the question as to what is the most scientific way of dealing with the puerperal period has been spoken—asepsis and antisepsis; the other question as to how the infection arises in *all* cases may be left for future work.

THE CAUSATION, DIAGNOSIS, AND TREATMENT OF PERFORATING ULCER IN TYPHOID FEVER.[1]

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THE increased frequency with which laparotomy is performed with the object of suturing a perforated intestinal ulcer in typhoid fever has rendered the differential diagnosis of abdominal complications in the course of that disease of far more importance than it was formerly. Moreover, in order that surgical treatment shall have the best chance it is imperative that a correct diagnosis shall be made as early as possible, a matter very often of extreme difficulty. I have thought that the records of a large fever hospital would furnish some facts of value bearing on the subject; hence I venture to bring it before your notice this evening. My observations are based upon the notes of 96 cases of perforation occurring amongst 1921 cases of typhoid fever under treatment at the Eastern Hospital, Homerton, during the 12 years 1892 to 1903. All these 96 cases were fatal with two exceptions, one in which an operation was performed and another where the nature and course of the symptoms justified a diagnosis of perforation, a case to which I shall refer again later.

From the figures just given it will be found that perforation occurred in 4·9 per cent. of the cases and as there were 304 deaths altogether perforation was responsible for 31·5 per cent. or nearly one-third of the total. I think, however, that we may safely conclude that in quite a third of the total deaths perforation took place. The figures given above are not quite accurate inasmuch as a post-mortem examination was not made in every fatal case. There were 189 necropsies and in 68 (or 35·9 per cent.) perforation was found. In some of the cases perforation had hardly been even suspected during life.

Causes.—62 of the patients were males and 34 were females. I have no explanation to offer of the greater frequency of this complication in the male sex. It is seldom met with in children under ten years of age; I have notes of only eight such cases and, curiously enough, seven of them were girls. The youngest case was that of a girl aged six years. It seldom occurs in patients over 40 years of age—seven cases only—the oldest being a man aged 63 years. The ages from ten to 24 years furnish the largest number of cases (52). As perforation does not usually take place until the sloughs in the intestine have begun to separate it is seldom met with before the third week of the disease. In fact, in only five out of 82 cases in which accurate records are given of the length of the illness did perforation take place during the second week; the earliest day was the tenth. I have never known it to occur during the first week. Most of the cases occurred during the third, fourth, and fifth week (64 out of 82); in nine cases perforation occurred during the sixth, in three during the seventh, and in one during the tenth week; of these last 13 cases seven took place during relapses of the fever. Two of the fifth week cases were cases of relapse, so that 9·3 per cent. of the perforations happened during a relapse. So far as perforation is concerned relapses may be reckoned as first attacks, so that this complication is unusual during convalescence. Of 56 cases in which a post-mortem examination was made and an accurate note was recorded of the state of the ulcers, in 41 sloughs were still present.

With reference to the sort of case in which perforation most commonly occurs I am sure that severe cases furnish a large proportion of the total number; in 14 of the 96 cases perforation had taken place before admission, so that of those I know nothing as to the nature of the attack, but of the 82 remaining cases 39 were certainly very severe ones, while of the other 43 very few could have been called mild. And at necropsies on patients in whom perforation has occurred it is very unusual to find scanty ulceration. Amongst the 68 post-mortem examinations already referred to the mildest case from this point of view was that of a lad, aged 12 years, in whom only three ulcers were found. In the large majority of the cases the ulceration was both extensive and deep. I find, too, that in 20 of the 96 cases (20·8 per cent.) perforation was preceded by hæmorrhage which is another complication that is found most frequently in the more severe forms of the disease. The conclusions from these facts are that perforation occurs most frequently in severe cases and in the acute stage of typhoid fever.

The immediate or exciting causes of perforation that have been described are many: errors in diet; unsuitable purges, whether administered by the mouth or the rectum; straining at stool; sudden movements on the part of the patient, usually in delirium; careless movements of the patient by the nurse or attendant; and distension of the bowels. But while not denying that perforation may result from any one of these causes, more especially, so far as my own experience goes, sudden movements of the patient by himself or others, yet I do not believe that any of these are at all common. I will even go so far as to say that they are uncommon, at any rate in hospital practice. Even of the 14 cases in which perforation had taken place before the patient's admission to hospital in only one or two was there any reason to believe that the act of removing the patient had been the cause. In most of them perforation had occurred before removal. In my opinion by far the most common cause of perforation is the mere extension of the necrotic process to the peritoneal coat of the bowel. A bit of the peritoneum is included in the slough and as the slough has got to separate a hole must result sooner or later. Sometimes, when the peritoneum is involved in the inflammation that precedes necrosis, lymph is thrown out and seals the minute hole formed in the first instance but with the separation of the slough the hole becomes larger and the adhesions then give way. This is what both my clinical and post-mortem room experience has taught me. Though I have specially looked for it, I have never seen a slit-like perforation, suggesting that the peritoneum has been torn through. This condition has been described by the most competent observers but it must be very rare. I would not, however, on account of its rarity, have you think that I am for relaxing the order given to nurse and attendants that the patient suffering from typhoid fever is to be moved with the greatest possible care.

Symptoms and diagnosis.—By far the most constant symptom is pain in the abdomen; this pain is nearly always sudden and frequently severe. Still in at least 20 of the 96 cases the initial pain was slight. The seat of the pain is most often in the lower part of the abdomen, especially in the right iliac region. It is not at all uncommon, however, for the patient not to be able to localise the pain and to say that it is felt all over his abdomen. Not infrequently, also, the pain is referred to the epigastric region or even to the lower part of the chest. It may exceptionally be referred to almost any region of the abdomen. In two of the cases there was in addition to pains in the lower part of the abdomen pain at the end of the penis. One of the points that I think should be emphasised about the pain is the suddenness of its onset, even though it be slight. I doubt, however, whether one would be justified in diagnosing perforation merely from the occurrence of the single symptom pain, so that it is important to ascertain whether there are any other symptoms. These may be either local or constitutional. The former are of most importance: tenderness, sometimes exquisite, most often in the right iliac region; rigidity either in this same region or all over the abdomen; alteration in the condition of the abdomen in the direction of either distension or retraction, if this alteration has been observed to occur somewhat quickly after the pain. Obliteration of the liver dulness may be found quite early, but as

[1] A paper read before the Hunterian Society on April 27th, 1904.

a rule, if it does occur, occurs several hours after perforation.

Of what I may call the constitutional symptoms one of the most important is shivering. In 25 of the cases (26·0 per cent.) shivering occurred about the time of perforation or within an hour or two of it. The shivering may be of all degrees up to a severe and prolonged rigor. While shivering usually occurs at the time of the pain or soon after I have known it to precede by some hours any other signs. Thus (Case 1) a girl, aged 12 years, had a rigor at 1 P.M. on Nov. 15th but presented no abdominal signs till 37 hours later and these were the signs of peritonitis which proved fatal a few hours later. Again (Case 2), a man, aged 31 years, suffering from a very severe attack, had a rigor one morning at 10 A.M. The pulse became quick and running, the respirations thoracic, and occasionally the patient lay with his legs drawn up, an unusual attitude in this disease apart from abdominal complications. At noon the patient, who was quite conscious, declared that he had no pain at all though the abdomen was slightly retracted and rigid. It moved on respiration. There was no abnormal dulness. At 11 P.M. he was seized with severe abdominal pain, became collapsed, and died in eight hours. Other initial symptoms, important but of less frequency, are vomiting, collapse, a change of colour in the face (the patient becoming of a slightly grey or cyanotic hue), an anxious expression (not usual in children), the passage of two or three loose stools where previously there has been constipation or an infrequent action of the bowels, and an increase of pulse-rate. A marked fall of temperature is the exception. My belief is that a fall of temperature usually means collapse or the onset of peritonitis. At any rate, it is not often met with immediately following perforation, though it is not uncommon to find it a day or two later.

I would emphasise the statement that the sole occurrence of any one of the symptoms which I have been enumerating should always be the signal for most careful examination and observation of the patient with a view to the detection of peritonitis. When one simply enumerates a number of symptoms as indicative of any particular disorder or complication it often seems to the reader or listener that diagnosis should be, if it is not, easy. But it is very difficult, if not impossible, to convey in words the varying degrees of severity or prominence of symptoms, together with the combinations and sequences of them, all of which points are, perhaps at times unconsciously, taken into account by the experienced observer. It is a trite saying that it is easy to be wise after the event. I will relate, however, one or two cases in which I went wrong, more especially as they will serve to illustrate points about which not much is said in the ordinary text-books.

CASE 3.—A man, aged 56 years, was admitted to hospital on Dec. 15th, on the fourteenth day of his illness. He was suffering from a definite but mild attack of typhoid fever. There was nothing special about his case till two days after admission, the sixteenth day of his illness, when I was called to see him at 8.45 P.M. "Soon after 8 P.M he had a rigor, which lasted about ten minutes; his temperature was then 101° F. Now the patient is still shivering a little. He says that soon after 7 P.M. he passed a stool and then had a little abdominal pain, which he still has. It is not at all severe and is referred to the left side of the abdomen below the level of the umbilicus. The abdomen is a trifle full and the muscles on both sides a little rigid; liver dulness normal; no absolute dulness anywhere over the abdomen, but some impaired resonance in a band just below the umbilicus, stretching from about the middle of the right iliac fossa slightly upwards towards the upper part of the left iliac fossa. The percussion note, however, varies in different parts of the abdomen. The bowels were opened freely just before the rigor and again just after it. The motion was loose and somewhat pasty. Patient also vomited just after the rigor, bringing up some milk tinged with bile; pulse 102, small, not wiry, regular. No sign of collapse." Midnight: "For the last hour or so patient has had no pain; he is now sleeping quietly and the pulse is quiet. He has passed another stool with curds and probably a little slough in it. Patient woke while I was present. The rigidity of the abdominal muscles has gone off; he says he has some abdominal tenderness when he moves, mostly on the right side." Nourishment by the mouth was omitted, except a little water or ice. The next day, the seventeenth of the illness, I noted that the patient slept well during the night. There was still some tenderness round the umbilicus for about four inches. There was no more shivering or vomiting and the pulse was good (88). There was now no abdominal dulness, but the same note was present all over. Nourishment by the mouth was resumed (whey). At 6 P.M. the note was as follows: "Up to about 4 P.M. the patient had occasional pain; since that at intervals of about 10 to 15 minutes he has had rather sharp attacks of pain. He has been retching about four times. Now he has no pain, but there is some tenderness on pressure over the abdomen. He says that the pain, when he has it, is all over the abdomen and not in any particular region. The abdomen is a little fuller than it was this morning, and a little tense, equally on both sides. The percussion note is not the same all over, being a little flatter in the lower half. The liver dulness is present but confined to a strip about one and a half inches wide at the costal margin. It was more than this before. P. 96, rather smaller than before. The pulse seems to me to be too good for peritonitis or perforation. No more shivering. Not restless. The retching has been violent." At 12.30 A.M. (six hours later) the abdomen had become more tense, there was occasional slight retching, the pulse was smaller, there was hardly any pain, but slight tenderness. There was no bell-sound over the abdomen. At 9.45 A.M. the patient was much worse, the pulse was feebler, and the face was clammy. He had had pain during the night but not at all severely till about an hour ago; there was frequent vomiting; the abdomen was more distended; there was no liver dulness. He was much relieved by morphine, so that he had no more pain and no more vomiting after 2 P.M. The patient gradually sank and died at 6.50 P.M., about 48 hours after the first symptom. He was quite conscious up to the end and, in fact, during the afternoon he gave certain directions as to the disposition of his affairs.

A post-mortem examination revealed a perforation and peritonitis. The perforation was nine inches above the valve and was a large one, half an inch by a quarter of an inch. The last 18 inches of the small intestine were ulcerated. The great omentum was found covering the whole of the small intestines, reaching down to the brim of the pelvis. On the left side it was very firmly adherent to the pelvis by fibrous bands which I had to cut through. Evidently there had been peritonitis at some previous time. The omentum itself was very thick, fat, and fibrous.

The following note was made after the post-mortem examination on Dec. 20th: "This case has been most instructive. When I saw the patient not long after the rigor on the evening of the 17th I of course at once thought of perforation. The dulness I noted then I think was very likely due to the thickened omentum found post mortem. What put me off absolutely diagnosing perforation was the excellent general condition of the patient. I did not indeed put him on the visiting list[1] till I saw him at midnight, ordering the letter to go by the first post in the morning. I only put him on the 'visiting list' then as a matter of precaution, because he was better than earlier in the evening. Next morning he was still better to such an extent that I quite negatived the idea of perforation and resumed the nourishment by the mouth."

Had the patient not been 56 years of age (and looking somewhat older) I should, I think, have urged an exploratory operation on the night of the 17th. But his age, combined with the fact that the symptoms were slight, caused me to negative the idea. The post-mortem examination showed that it would have been, on the whole, a favourable case for operation, though the ulcer that had perforated was rather large.

CASE 4.—A youth, aged 17 years, was admitted to hospital on the twenty-first day of his illness which was severe No unusual symptoms were observed, except that at times the patient got a little cyanotic, till the twenty-fifth day when at 10.45 A.M. he complained of pains in the abdomen and at 11.15 he began to shiver a little. I saw him at 11.30 A.M. He was still shivering a little. His pulse was 118 and the respirations were 20; previously they had averaged 98 and 28. The patient was a little dusky. The abdomen was slightly retracted and the patient said that he had pain all over it. There was very slight rigidity of the lower half of the abdomen below the umbilicus on both sides and liver dulness was present. The bowels were moved at 11.15 and at

[1] Patients are not put on the "visiting list" unless they are considered to be dangerously ill.

11.45. I was doubtful about perforation. At 1.45 P.M. I noted that the shivering had stopped at noon. The patient was much more comfortable. The bowels had been opened once and urine passed since 11.45; the pulse was soft; there was no abdominal pain and the abdomen was not at all rigid, and the colour was better. I thought that after all perforation had not occurred. The patient had a slight attack of pain at 4.15 P.M. and again at 6 P.M. At 9.30 P.M. he was worse; since 8 P.M. he had retched two or three times, the pulse was small, compressible, and weaker and he looked worse; the abdomen was moderately distended but not rigid; the liver dulness was quite gone; there was very little pain in the abdomen even on percussion and the patient was restless. There could now be no doubt that perforation had occurred and laparotomy was performed at 11 P.M. There were gas and fluid in the peritoneal cavity with much peritonitis. The perforation was about two inches above the valve and was closed with sutures. The patient gradually sank and died 41 hours after the operation. A post-mortem examination showed that the last foot of the small intestine was most severely ulcerated.

CASE 5.—A boy, aged 13 years, was admitted to hospital on the tenth day of a not very severe illness. On the fourteenth day, at 4 P.M., he had sudden pain in the abdomen; it was not severe enough to make him cry out but he began to make a fretful noise. The patient, I may add, had been fretful since admission and was always, as the nurses' expression is, "very sorry for himself." The pain was relieved by hot fomentations but came on again at 4.30. I did not see him till 6.40 P.M.; he then complained of pain in his abdomen and on being asked whereabouts it was he moved his hand all over his abdomen. The abdomen was a little retracted and the lower half of each rectus was distinctly rigid; liver dulness was normal. The pulse was 116; at 5.45 it had been 96. Feeding by the mouth was stopped and ice was applied to the abdomen. At 7.45 the pulse was 108. At 11.45 it was also 108, of good volume, and the pain was easier; the other symptoms were about the same. After 11 P.M. the boy had a good night and slept well. The next morning the abdomen was flat and not so retracted as on the previous day; it was still painful all over and rigid in the lower half. The pulse was 124 and fairly good. There was great pain during micturition; there was no vomiting or retching. The boy looked better. When he was left alone and watched from a distance he appeared to be fairly comfortable and lost the distressed look he had when anyone was by his bedside. When this note was made he was amusing himself by looking at a newspaper. At 3 P.M. on the same day he suddenly got worse with severe abdominal pain and vomiting. He rapidly showed the usual signs of peritonitis and died at 7 A.M. on the seventeenth day.

At the post-mortem examination a minute perforation was found eight inches above the valve. There was most intense general peritonitis. The ulceration of the small intestine was not severe. In each of these three cases a distinct remission of the symptoms occurred which quite deceived me and led me to suppose that after all such a serious event as perforation had not taken place. If the chief symptoms indicative of perforation were not met with in other conditions in typhoid fever the diagnosis would be very much simplified. But sudden (and even severe) abdominal pain, shivering, and rigidity of abdominal muscles may all occur and yet as far as one can be sure no perforation have taken place. For instance (Case 6), a man, aged 32 years, suffering from a rather severe attack of typhoid fever, was seized one morning with marked shivering and abdominal pain. There was at the time no local symptom besides the pain. Shortly afterwards the patient vomited. In the evening the abdomen had become somewhat distended and there was pain in each iliac fossa. The patient was retching and had hiccough. His pulse gradually failed and he died 14½ hours after the onset of the symptoms. The post-mortem examination revealed severe ulceration of the ileum. Several of the ulcers were large and their bases were very thin. On the peritoneal aspect were patches of lymph and there was a little lymph on the under surface of the great omentum. There was some dark serous fluid in the pelvis. There was no general peritonitis and although careful search was made no perforation or suggestion of perforation could be found.

CASE 7.—A man, aged 26 years, was admitted to hospital with typhoid fever. He had been suffering from severe abdominal pain and diarrhœa for four days before admission. On admission he was found to be somewhat collapsed, was perspiring freely, but had a fair pulse. The abdomen was full and tympanitic, it was tender on palpation, and there was pain in the right iliac region. Breathing was thoracic. His temperature was 100·2° F. and the pulse was 96. Laparotomy was performed five hours after admission but absolutely nothing wrong could be found in the abdominal cavity. The abdominal pain persisted but the patient continued to progress fairly well. Five days after the operation signs of right basal pneumonia appeared. The patient quickly became worse and died the same evening.

Permission was given to examine the abdomen only, but except for the intestinal ulcers nothing wrong was found. It was a question in this case whether the abdominal pain may not have been the referred pain of pleurisy.

CASE 8.—A man, aged 33 years, was admitted to hospital on the fourteenth day of his illness. It was noted on admission that the abdomen was hard and resistant. I was requested to see him the next day because it was a question whether perforation had taken place. At 11 A.M. he had had an attack of abdominal pain which increased during the next two hours. At 1 P.M. the abdomen was full and resonant all over. It was rigid on firm palpation; the liver dulness was obscured. There did not seem to me to be quite sufficient evidence to justify an operation. Hot applications to the abdomen gave much relief and next day all the pain had gone. On the twentieth day of his illness (five days after the attack of pain) there were well-marked signs of pleurisy with effusion on the right side. Possibly this (as in the case related above) was enough to give rise to the abdominal symptoms. At any rate, when five days later I performed a laparotomy on account of unequivocal symptoms of perforation I could find no evidence of any previous abdominal lesion. The patient recovered.

I could give notes of other cases in which, though perforation and peritonitis were suspected, if not diagnosed during life, yet post mortem only peritonitis was found. But with these I will not trouble you as I think the diagnosis of peritonitis justifies laparotomy. But I will relate a case or two in which there were abdominal symptoms suggestive, though by no means conclusive, of perforation or peritonitis, but in which the patient recovered and the diagnosis was never cleared up.

CASE 9.—A woman, aged 28 years, was admitted to hospital on Dec. 3rd with typhoid fever. She had been ill for rather more than a fortnight and five days before admission she had miscarried. She had a sharp attack but did very well and was beginning to convalesce (her temperature having shown signs of settling down to normal for upwards of a week) when on Dec. 27th at 4.30 A.M. she was during sleep seized with very severe abdominal pain and vomiting. The medical officer was summoned; the patient had pain, tenderness, and slight rigidity in the right iliac fossa. The pulse was 140, small, and somewhat wiry, and the temperature was 98° F. It was thought that something serious had happened and her friends were sent for. But in the course of three hours or so the urgent symptoms had all gone and by the evening the patient was as well as she had been before.

CASE 10.—A woman, aged 28 years, was admitted to hospital on Dec. 19th, having been ill since the 4th. She went through a severe attack of typhoid fever and her temperature did not settle down to normal till Jan. 16th. Ten days later, on the 26th, she complained of pain over the region of the liver. The pain came on suddenly at 9.30 A.M. and was at first sharp, though during the day it became less severe. There was tenderness in this region. During the following night the temperature rose to over 100° F. The pain became worse. There was bilious vomiting on seven occasions between 1 P.M. and 1 A.M. The patient preferred to lie on the right side. Her face wore an anxious expression. Her pulse was small and running; the rate was 168 at noon and remained high during the day, being 152 in the evening, when the temperature was nearly 103°. The abdomen was not distended; there was exquisite tenderness over the region of the gall-bladder, where there was some fulness. The abdominal wall was held rigidly, the rigidity being most marked on the right side. There was just a faint yellowness of the sclerotics. There was impaired resonance or percussion over the whole of the right half of the abdomen to about two inches above Poupart's ligament. There was no vomiting between 1 A.M. and 2.30 P.M. A simple enema was administered which produced a fairly copious, brown, formed stool. No stones were to be found

in it. She was better in the evening after opium and belladonna. Without going into further details it will suffice to say that the patient gradually recovered and on Jan. 30th all pain and rigidity had gone. The liver could then be felt a little enlarged and there was slight jaundice. There was irregular pyrexia till Feb. 7th. She had a slight return of the pain with pyrexia on the 13th and 14th and of pain with vomiting on March 7th. She went out well on the 14th. At first it was suspected in this case that there was perforation of the gall-bladder. But when I saw her on the morning of the 27th her pulse was very bad and her general condition was such as to negative the idea of any operation. As she rallied all the symptoms passed off. Subsequently she informed me that she had suffered from similar attacks (she called them bilious attacks) for many years and that she generally had to lie up for a day or two when one came on. I suppose that the attack on Jan. 26th gave rise to serious symptoms chiefly on account of the patient having barely recovered from a rather severe attack of typhoid fever.

A somewhat similar case was that (Case 11) of a man, aged 28 years, though in this instance there was no history of previous attacks. He was admitted to hospital on Oct. 9th, on about the thirty-fifth day of his illness. He was a clerk and had kept on with his work long after he ought to have been in bed and under medical treatment. He went through one of the most severe and prolonged attacks I have met with but had no complications. On Nov. 28th when he was well on the way towards recovery he was, just before 6 P.M., seized with nausea and pain in the epigastrium. I saw him at 6.30 P.M. He had just vomited some thick offensive greenish-yellow stuff with some curdled milk. He had taken a little milk with bread-and-butter at 3.30. He looked anxious. He had pain in the epigastrium which was not worse on one side than the other. There was rigidity of the upper part of each rectus but no distension. On percussion there was pain in both hypochondriac and in the epigastric regions, but not below them. The liver dulness was well marked; breathing was thoracic. The temperature, which had been normal for some days, was 102° F.; the pulse was very small and very difficult to count, about 160. The patient was shivering a little. I ordered hot fomentations to be applied and that nothing should be given by the mouth. I saw him again at 9.30 P.M.; he seemed better and he had lost the anxious expression; he had been sleeping for about an hour and was without pain. There was rigidity only in the right hypochondrium; the patient flinched when percussed in this region; there was an area of dulness in the region of the gall-bladder below the costal margin. There was no distension. There had been no more vomiting or shivering. On the next morning the patient was better; the pain had gone. The area of dulness had decreased, but there was distinct fulness in this place. There was a very faint yellow tinge of the conjunctivæ. The temperature had gradually come down to normal again during the night. On the 28th the patient was distinctly jaundiced. By the 30th all the symptoms had disappeared.

One point to be noticed about both these cases is that the attack of pain came on during convalescence; whereas, as I have shown, perforation is not common during this period.

Sometimes attacks of abdominal pain are due to constipation, or rather perhaps I should say to fæces accumulating in the large intestine and giving rise to irritation of the bowel. Then the pain will usually be found to be in the course of the large intestine. During convalescence constipation is the rule and at that stage colic of this nature is not so likely to be mistaken for the pain of perforation. But constipation may be marked all through the febrile period and when during that period it excites colic the diagnosis is not so simple. Thus (Case 12) a man, aged 25 years, was seized at 5.20 P.M. on the fourteenth day of a rather severe attack of typhoid fever (in which an action of the bowels every two or three days had been secured only by enemata) with pain in the abdomen accompanied by retching. The pain was to the left, a little above the umbilicus. When I saw the patient at 5.30 he stated that he had a sensation of wishing to pass a motion. This is a symptom which I have noticed in two or three cases where perforation has really taken place. The only abdominal sign that I could find was rigidity, general, but at the same time most marked in the upper half of the left rectus. The patient's lips were a little blue; the pulse was 98 and dicrotic. There was no shivering. Between 5.30 and 7 P.M. the patient had several severe attacks of abdominal pain. As the bowels had not been moved for three days and the rectum was full of fæces I ordered a simple enema; this produced a copious stool in which were many scybala. The temperature in this case fell from 101·2° F. at 6 P.M. to 98° at 10 P.M., rising later to 101°. Some retraction and rigidity of the abdominal wall remained for two or three days, after which all the abdominal symptoms disappeared.

In some of these cases of constipation, especially during convalescence, scybala may be felt in the large bowel through the abdominal wall and peristaltic action of the large bowel may also be felt and seen. My impression is—though I find I have no actual notes bearing on the point—that when perforation has taken place, or when peritonitis is present, there is no such sort of movement of the intestine. But scybala may be found in an intestine that has perforated. Thus (Case 13) in the case of a woman, aged 35 years, at the beginning (the sixth day) of a relapse the assistant medical officer on going his usual morning round made the following observations: "Abdominal pain set in last evening; the abdomen is now very prominent, not tense; not tender to the touch; the pain is general, but comes on worse at times; fæcal masses in ascending and descending colon." I did not see the patient till the evening. On closely questioning her I elicited that during the preceding night she had sudden, sharp, though not very severe, pain across the abdomen. I was told by the night-nurse that the patient did not complain to her very much about the pain, though she did do so a little at about 3.30 A.M. At 4.45 P.M. the patient vomited copiously and there was marked tenderness in the right iliac region. The pulse was 133 and the respiration was thoracic. Laparotomy was performed 20 hours after the first attack of pain. A perforation was found and was sutured. There was septic peritonitis. The patient lived only for 27 hours. But the point of the case is that the medical officer when he saw the patient about seven hours after the attack of pain at 3.30 A.M. connected both the pain and the distension of the abdomen with the accumulation of fæcal masses in the colon. These scybala were very easily felt when the abdomen was opened.

Illustrative of what I have said above concerning peristaltic action of the bowel I may mention the case (Case 14) of a boy, aged 15 years, admitted on the tenth day of a severe attack. On admission the abdomen was distended. On the sixteenth day, in consequence of continuous pyrexia and delirium, he was placed in a wet pack and kept in it for 12 hours. The temperature fell in that time from 103° F. to 101°. Just after he was taken out of the pack the patient had a rigor. The abdomen was noticed to be full and inclined to be tense but not rigid. There was no constipation, two or three loose stools having been passed daily. The patient complained of great pain round the umbilical region. The respiration was thoracic; the pulse was 117. On the next day, the eighteenth of his illness, the abdomen was not so tense and there was less tenderness; liver dulness was present, there was thoracic respiration, and the knees were drawn up; there was no vomiting. The patient got a little better but still had abdominal pain on the nineteenth, twentieth, and twenty-first days. On the twenty-second day I noticed that a few coils of intestine could be made out slowly acting. The patient complained of much pain when the abdomen was touched. The pulse was good. The abdomen was a little retracted. On the next day the pain had gone. The boy made a good recovery.

The cases which I have given will serve to illustrate some of the difficulties that are encountered in the endeavour to distinguish the more from the less serious abdominal complications of typhoid fever. In the question of diagnosis another somewhat secondary point is raised—viz., if perforation has taken place, whereabouts is it? The 68 cases in which there was a necropsy are made up as follows: Perforation of the small intestine, 59; perforation of the large intestine, 3; perforation of the vermiform appendix, 3; perforation of the gall-bladder, 2; and rupture of a suppurating gland, 1. I have included the gall-bladder and gland cases because clinically they somewhat resemble the commoner forms. Both the gall-bladder cases have already been published. One case (Case 15)[3] was that of a girl, aged seven years, who when admitted to hospital "was complaining of pain in the abdomen, and it was found that the abdomen was somewhat hard and resistant in the right hypochondrium. The child lay on her back with her legs

[3] Metropolitan Asylums Board Annual Report for 1901, vol. ii., Medical Supplement, p. 208.

drawn up; her temperature was 100·2° F.; pulse 112, small; respiration 36. The face wore an expression of pain; the breathing was thoracic. ..... The hepatic dulness was normal as regards its upper limit, but below it extended to the level of the umbilicus, reaching the median line of the abdomen on the left, while on the right it ascended and was lost a finger's breadth below the last rib behind. Besides the resistance mentioned above there was pain and tenderness over the liver, with a suspicion of œdema. The liver surface was smooth and its lower and inner edge was sharp and easily defined. The abdomen was considerably distended; upon its surface were a few rose-coloured papules. ..... During the following night the patient vomited a little undigested milk." On Dec. 3rd, three days after admission, "I examined the patient and found that the hepatic dulness did not extend so far below the costal margin as it did on admission and the abdomen was more distended. I could not make out the gall-bladder nor any local swelling of the liver. I thought the case was one of typhoid fever, with inflammation about the gall-bladder." Subsequently the lower limit of the hepatic dulness varied a little from time to time; on Dec. 14th there was a suspicion of a thrill in the right hypochondrium. Symptoms of meningitis set in (the patient was also the subject of double otitis) and the child died on the 15th. A post-mortem examination was made on the 15th. It was found that round the gall-bladder was a large irregular cavity, shut off from the general peritoneal cavity by recent adhesions. The cavity was full of turbid, bile-stained fluid, with shreds of mucus and lymph. The gall-bladder was perforated in three places. On opening it there were found from 15 to 20 ulcers, the largest about three-quarters of an inch in diameter, the smallest of the size of a pin's head. The three largest had perforated and it looked as if the whole floor of each ulcer had fallen out. There was distinct, though slight, ulceration of the small intestine, especially close to the valve. The ulcers were in process of healing. There were suppuration in the left middle ear and mastoid antrum and cells and general purulent meningitis. When actual perforation in this case took place it was impossible to say; possibly after the adhesions had formed. The other case (Case 16)[4] I brought before this society on March 8th, 1899. A young man, aged 23 years, was admitted to hospital on the fourth day of his illness. On admission he complained of severe abdominal pain; that passed off by the next day, when nothing wrong with the abdomen could be detected. On the tenth day he complained of pain across the epigastrium. On the fourteenth day he again complained of pain in this region after taking nourishment. No further pain occurred till the twenty-second day. At 9 P.M. the patient had a rigor followed by slight abdominal pain which was better the next morning. He was then moaning a good deal. The abdominal muscles were rigid and on pressure the patient gave signs of much pain, especially on the left side of the abdomen. There were hiccough and retching. During the next 24 hours the temperature fell to 97°. On the twenty-fourth day there was some localised hardness of the abdominal wall over the middle of the right rectus; the abdomen was fuller than before; the liver dulness was diminished; there was no pain, but the patient had had some morphine after the rigor some 36 hours before; there was constant vomiting. The patient gradually sank and died on the twenty-ninth day, the abdominal signs remaining much the same to the end, though it was noted on the day before death that the liver dulness was still present and that there was dulness in the right flank and right iliac region. The post-mortem examination showed general peritonitis, but without pus. The gall-bladder was adherent to the stomach. In the middle of this adhesion an aperture was found which led into an irregularly shaped cavity situated in the wall of the gall-bladder where it abutted on the stomach. This cavity extended for about three-quarters of the length of the organ. It was full of shreddy matter, deeply bile-stained. A very small aperture existed between the cavity and the interior of the gall-bladder which was empty. The wall of the gall-bladder was in a very rotten state and tore readily; as far as could be made out there was no ulceration of the mucous membrane of the gall-bladder. Apparently there had been suppuration in the wall of the gall-bladder.

I do not think this case could have been positively diagnosed during life as a perforation of the wall of the gall-bladder. But had laparotomy been performed—at any rate by daylight—it would have been seen at once what had taken place, as the peritoneum and abdominal organs were deeply stained with bile.

A very unusual case (Case 17) may be mentioned here because, clinically, it bore some resemblance to those I have just narrated, though it was not an instance of perforation of the gall-bladder. A young woman, aged 22 years, a ward maid in the hospital, was admitted to a ward on Jan. 27th, 1893, after having been suffering from pains in the arms and hands for a week. She was found to be suffering from slight swelling of the right wrist, tonsillitis, and pyrexia. At first her symptoms were not suggestive of typhoid fever, except that the temperature remained constantly raised (from 102° to 104·8° F.). It was not until Feb. 10th that spots appeared. On the 2nd I noted that the abdomen was natural. Early on the morning of the 3rd the patient vomited. In the forenoon I examined her and made the following note: "To-day in the right hypochondriac region is a distinct swelling; it extends to within a quarter of an inch of the umbilicus; outside to the tip of the tenth rib, inside to just within the middle line. It moves with respiration, it can be felt bimanually (from before backwards). It is moveable to a certain extent, it is very firm to the touch, has an irregular surface, and is a little painful on pressure. It is dull on percussion, but the dulness does not extend downwards or inwards so far as the swelling can be felt. There seems to be a furrow between the round part of the swelling and the liver just below the margin of the ribs. On turning the patient on to her left side the swelling falls to the left of the middle line and one can get one's fingers nearly round it from side to side and below but not above it. Tongue red and moist, covered with a little fur; no jaundice; no history of jaundice, nor of any attack like this. Urine contains a cloud of albumin." The question was whether the swelling was in connexion with the gall-bladder or kidney or whether it was a mass of fæces in the colon; I inclined to the former view. I may add that this patient was constipated; it was only by means of an enema that an action of the bowels was secured, the stools being formed. On and after Feb. 10th the motions became loose and light. The microscopical examination of the urine gave negative results. After a day or two I was able to exclude fæcal accumulation as the cause of the swelling. The swelling varied a little in size from day to day but otherwise there was no fresh symptom in connexion with it until the 20th when the patient complained of abdominal pain. The next morning I observed that the abdominal muscles were rigid, in consequence of which I was unable to feel the swelling. On the 28th at 5.30 A.M. there was an attack of acute abdominal pain with bilious vomiting. The pain was relieved by an enema containing opium but returned at 7 A.M. when the patient again vomited. At 1.30 P.M. I noted that the right rectus was very rigid and stood out, giving a full appearance to the right hypochondrium. There was dulness in this region to the level of the umbilicus. The pulse was 118, small, but not thready; the patient was not collapsed. The tongue was fissured and furred. The patient informed me that the pain she had had in the morning was all over the abdomen. I had definitely diagnosed typhoid fever on the 10th. For some days before the 28th the temperature had been falling and oscillating, as is usual during the defervescence of this fever. I came to the conclusion that the abdominal pain was due to something in connexion with the swelling. During the evening of this day the patient vomited three times. Next day, March 1st, there had not been any more pain or vomiting; the dulness was not so extensive but the right hypochondriac region was painful on pressure. During the night the temperature had varied from 101° to 102·4°. On the 2nd and 3rd she had several attacks of severe pain with vomiting. Sometimes the pain was referred to the right hypochondrium, sometimes to the whole of the abdomen. The local swelling and rigidity remained the same. The fæces were examined for gall-stones with negative results. On the evening of the 3rd she was removed to a general hospital in order that an exploratory operation should be performed. The opinion expressed by myself and others who saw her was that the case was one of suppuration in a distended gall-bladder during an attack of typhoid fever. The operation was performed on the 5th and the swelling was then found to be a suppurating hydatid cyst of the liver. The patient died a few days later. Another hydatid cyst was found situated deeply in the liver;

[4] Transactions of the Hunterian Society, 1898–99, p. 135.

there was right basal pneumonia but no peritonitis. There were several healing typhoid ulcers in the intestines.

The case in which a suppurating mesenteric gland had given way and caused death by setting up peritonitis (Case 18) was that of a woman, aged 42 years, who died on the twenty-third day of her illness. The symptoms were those of peritonitis only.

Of the three cases in which the perforation was situated in the large intestine in one instance it was in the ascending colon, in a second in the descending colon, and in the third in the sigmoid flexure. The latter two were diagnosed as perforation cases; there was pain which was most marked in the left side of the abdomen. The first case of the three (Case 19), however, was not diagnosed as regards the perforation. The special symptoms connected with this were pain and œdema in the right flank for four days before death and occasional vomiting. Post mortem there was an abscess behind the cæcum; there was no general peritonitis. These three cases were all very severe ones.

The three appendix cases were all interesting and difficult. In one (Case 20), a girl, aged eight years, a sudden attack of abdominal pain had occurred on the twentieth day. She said that the pain was all over the abdomen. The abdomen was sunken and soft and there were absolutely no localising signs but the patient was suffering from a very severe attack of typhoid fever and was at times delirious. There was no more pain till the twenty-eighth day. On the thirtieth day I made a careful examination; the abdomen was moderately distended but quite supple. The patient cried and moaned when the abdomen was palpated as if it was painful; but there was no sign to indicate perforation or even peritonitis. She died on the evening of that day. It was found that the appendix was bound down to the brim of the pelvis by soft adhesions; in it were two perforations. There were about four ounces of creamy pus in Douglas's pouch but there was no general peritonitis.

In the second case (Case 21), that of a woman, aged 23 years, there was indefinite pain in the abdomen on and off for 18 days before death, with occasional vomiting. The day before death there was some rigidity of the abdomen. Perforation was not diagnosed. Post mortem there was general septic peritonitis due to a perforation of the appendix.

In the third case (Case 22), that of a boy, aged nine years, the patient had a mild attack followed by a relapse on the twenty-third day. On the twenty-fifth day a small nodular swelling was observed in the abdominal cavity to the left of the umbilicus. The abdomen was full and tympanitic. On the twenty-seventh day there was bilious vomiting, which continued occasionally till the patient's death on the twenty-ninth day. There was some slight abdominal pain about this time but it did not last long. Beyond slight abdominal distension and the indefinite mass already mentioned which could still be felt on the twenty-seventh day, there were no abdominal signs and perforation was not diagnosed. Post mortem there were general septic peritonitis and a perforation close to the tip of the appendix.

I have looked through the notes of the 59 cases in which the small intestine was perforated and in which a necropsy was made in order to find out whether there were any signs to indicate the distance of the perforation from the ileo-cæcal valve, but I do not find that there were. It is true that in one case,[5] that of a woman, aged 39 years, who died within ten minutes of the bowel having given way, the perforation was found a little higher up than usual—two and a half feet—but I think that was merely a coincidence, for in other cases in which the perforation has taken place as high or even higher the symptoms were no more acute or severe and the fatal termination did not occur sooner than in those cases in which the perforation was situated close to the valve.

I have spent a considerable time on the question of diagnosis because that is the most important one. If perforation is diagnosed there is only one course to be followed—viz., laparotomy, with usually suture of the perforated portion of bowel. After reading through the reports of a number of a cases that have been operated upon, recorded in various journals and periodicals, I quite agree with Finney[6] in his conclusion that a moribund state of the patient is the only contra-indication to operation; it is certainly astonishing what patients who are desperately ill with typhoid fever will stand. I suppose everyone will agree with me in saying that if the patient is left he is almost certain to die. I am aware of the fact that cases are on record in which patients have recovered after having presented all the symptoms of perforation and peritonitis, and I believe that some of these cases really have perforated. An extremely interesting case of the kind is reported by Hare in his work on the "Cold Bath Treatment of Typhoid Fever" (p. 182). In this instance the patient died from some other complication six weeks after the occurrence of perforation and the post-mortem appearances quite bore out the diagnosis. For the full details I must refer you to Hare's account of the case. In my own practice I have had one such case (Case 23). A young woman, 20 years of age, was seized on the nineteenth day of a severe attack of typhoid fever with severe abdominal pain. The pain continued. On the twenty-first day the abdomen was rigid and painful, especially in the right iliac region. Respiration was laboured, there was vomiting, and the expression of the countenance was anxious. On the twenty-second day at 8 A.M. the patient, having had pain and retching during the night, became pulseless and cyanosed but revived with champagne. On the twenty-third day the abdomen became distended and tympanitic and there was dulness in the right iliac fossa. Next day there were also marked tenderness and some swelling of this region. On the twenty-fifth day it was noted that the abdomen was very tense and the skin pitted on pressure and on the twenty-sixth day there was a thrill. Symptoms pointing to some peritonitis (probably localised) persisted on and off for nearly three weeks longer, the only new symptom being marked peristalsis which was noticed on the thirty-second day. The patient ultimately made a good recovery. I may add that in this case an operation was proposed but refused. Such cases, however, are very exceptional. Adding the one I have related to the 68 in which the fact of perforation was ascertained by a post-mortem examination a recovery rate of 1·4 per cent. is obtained. Now, this is very much lower than that of cases operated upon, even when all allowances are made for selection of cases. The recovery rate in 362 cases collected by Harte and Ashhurst[7] was 26 per cent. They tabulated all the cases they could find recorded from Mickulicz's first case in April, 1884, to about the middle of 1903. Hawkins estimates the recovery rate after operation as about 25 per cent.[8] I cannot help thinking—nay, I am pretty sure—that this rate is considerably higher than is actually the case. Whereas I believe that very nearly every successful case gets reported I am sure—for I know of some—that every unsuccessful case does not. Of 49 consecutive cases occurring in the Asylums Board's hospitals, 36 of which have been reported in the Board's annual reports, four recovered, a recovery rate of 8 per cent., which is much higher than that of patients left to themselves but very much lower than that of the cases collected by Harte and Ashhurst.

I do not think that it is necessary for me to do more than mention the most essential points about the operation. They are: 1. Early operation, which means early diagnosis. I would not now hesitate to open the abdomen if there had been sudden though not necessarily severe pain, with localised tenderness and rigidity, more especially if there had been also shivering. I know that occasionally a perforation will not be found, sometimes not even peritonitis will be found. But the results of published cases of this kind are very favourable. Of 26 such cases collected by Harte and Ashhurst in the paper already quoted—cases in which no peritoneal lesions were found—16 recovered. It has been suggested that the abdomen should be explored in what has been termed the pre-perforation stage. But I do not believe it is possible to diagnose this condition and I do not recommend an operation in cases where there are only such vague symptoms as pain and distension. I am quite sure from what I have seen at operations for perforating typhoid ulcers that peritonitis may precede the perforation. Very often, however, the signs of preceding peritonitis are not at all obvious and one is astonished to find at an operation performed within two or three hours of the symptoms of perforation most severe and extensive peritonitis at the existence of which one had not even guessed. Of course, if there is profound collapse following immediately upon the

[5] See THE LANCET, June 23rd, 1894, p. 1560.
[6] Quoted by Hector Mackenzie, Practitioner, January, 1904, p. 158.
[7] Annals of Surgery, January, 1904.
[8] The Practitioner, January, 1904.

occurrence of perforation operation may have to be postponed, indeed, the patient may never rally sufficiently to admit of it. But my experience is that serious collapse immediately after perforation is the exception rather than the rule. 2. Rapid performance of the operation is of course very advisable. And one thing necessary to insure this is that the perforation should be found as soon as possible. In most of the cases the perforation takes place within 24 inches of the ileo-cæcal valve. In 55 cases in which the exact site of the perforation was noted post mortem in 32 it was within 12 inches of the valve, in 15 in from 12 to 24 inches, in five in from 24 to 36 inches (in one of these it occurred in Meckel's diverticulum; the only sign was tenderness on pressure on the abdomen and perforation was not diagnosed during life), in two in from four to five feet, and in one over five feet. Therefore it is hardly necessary to say that if the perforation is not found at once on opening the abdomen the ileo-cæcal valve should be taken up and the small intestine examined upwards from it. If no perforation is detected in the small intestine the appendix and large intestine should then in their turn be scrutinised.

As in most cases the perforation is found in the right lower quarter of the abdomen I think that the best incision is one in the right linea semilunaris or thereabouts. But I think that if I had to deal with a case where the local symptoms were most marked in some other region I should make my incision accordingly. In most instances it will be sufficient to suture the perforated intestine with a Lembert's suture or one of a similar nature. But if it be found impossible to do this on account of the large size of the ulcer or the thickness or induration of its edge I think that probably the best course to pursue is to fix it in the abdominal wound, making an artificial anus which one would hope to deal with later. Other methods of treatment (such as resection of the affected portion of gut) require more time and skill and are therefore to be undertaken only in special circumstances. As to whether irrigation and drainage should be employed depends on the nature of the case. They should certainly be carried out if septic peritonitis is found.

I need hardly go into other details of the treatment here. I will only mention that, unless the patient is suffering very severe pain before the diagnosis is made and laparotomy definitely determined upon or rejected, it is not wise to dose the patient with narcotics which will only mask important symptoms. I believe this occurred in one of the cases of perforation of the gall-bladder mentioned above. As regards the anæsthetic for the operation I have used a local anæsthetic in one case only (encaine); that was not a success and a general anæsthetic had to be resorted to after all.

ON THE BENEFICIAL EFFECTS OF SODIUM ARSENIATE EMPLOYED HYPODERMICALLY IN TSETSE-FLY DISEASE IN CATTLE.

By EDWARD J. MOORE, F.R.C.S., L.R.C.P. IREL.,
DISTRICT MEDICAL OFFICER, ASABA, SOUTHERN NIGERIA, WEST AFRICA.

SOME months ago the Government of Southern Nigeria established an experimental farm with the intention of teaching natives to use cow's milk as an article of diet for their children and thereby to put a natural check on twin murder by removing the reason on which this practice is based—viz., the inability of most ill-fed native women to rear two children. The site was selected as being one of the few localities where horses and mules thrived fairly well and 22 cattle, principally West Indian, were established there. These remained in health for a month and gave large quantities of milk, then the flow practically ceased and the animals became rapidly emaciated. The symptom which at first directed attention to the condition of the animals was an unwillingness to eat and on examination the teeth were found to be loosened; it was also noticed that there was a running of water from the eyes. The limbs below the knee and hock were the seat of a puffy swelling which did not pit on pressure. This caused a very characteristic club-shaped appearance of the legs in the earlier stages; later it was confined principally to the feet in the form of a hard, elastic, crescentic-shaped swelling above the hoofs in front and a more diffused swelling in the corresponding locality behind. In most cases there was a noticeable difficulty in passing urine, the animals "hunching" themselves up and straining very much during the act and the flow instead of being continuous was intermittent, which suggested loss of contractility of the bladder.

The affected animals rapidly lost flesh; the lymphatic glands, especially those in the groin, the axilla, and the root of the neck, became very much enlarged; there was moderate fever, intermittent in character, and never exceeding an elevation of 3° F.; the respirations were markedly increased in number and in the early stages there was a dry, hacking cough. After the lapse of a month drowsiness supervened, deepening into profound slumber which lasted 36 hours and terminated in death. Most of the animals died before the onset of the sleepy stage from obstinate constipation and retention of urine, due probably to paralysis of the intestines and bladder.

Dr. Chichester, who first examined the animals' blood, found the trypanosoma present, and Mr. Young, the superintendent, has drawn my attention to a peculiar spirillum-shaped organism with very active motion present in large numbers in the blood of one of the animals. This I am at present investigating.

Fowler's solution of arsenic was administered in one-drachm doses three times daily without giving rise to any material improvement. Later single doses of one ounce daily were given. These had to be discontinued as they increased the already existing tenderness of the mouth to such an extent that the animals refused all food and their general symptoms became aggravated.

In these circumstances I prepared a 1 per cent. solution of sodium arseniate, rendered slightly alkaline with sodium bicarbonate, and selecting the worst case where drowsiness had supervened and the condition appeared to be hopeless I injected one ounce of the solution subcutaneously on two occasions at an interval of a week. The beneficial effect was marked and immediate: the teeth became firm, the appetite reappeared, the swelling of the glands was hardly apparent on inspection, the animal put on flesh rapidly, and the quantity of milk, which had fallen to three-quarters of a pint, increased in a month to seven pints. The injections were tried with similar good results on all the surviving cattle.

The supply of arseniate solution having run out the injections were discontinued, with the result that the cattle maintained their improvement for a month and then slowly relapsed. Fowler's solution was then injected in one-ounce doses but it caused such extensive sloughing that it had to be discontinued. The arseniate solution is now being tried in two-ounce doses of 1 per cent. solution injected fortnightly with promising results.

There is no doubt from these experiments that single large injections of sodium arseniate, ten grains or even more, well diluted and given at intervals of a fortnight, exercise the most marked beneficial results in cases of advanced tsetse-fly disease in cattle, and I believe that in this procedure, combined with the prevention of reinfection, will be found the most satisfactory treatment of the condition. I would also suggest its employment in the human subject, in whom single injections of 20 minims do not seem to produce unpleasant effects.

Asaba, Southern Nigeria.

THE DOWNES ELECTRO-THERMIC ANGIOTRIBE.[1]

By H. MACNAUGHTON JONES, M.D.Q.U.I., M.A.O.R.U.I. (HON. CAUSA), F.R.C.S. IREL. & EDIN.

I SHOW these appliances for Dr. Andrew Downes of Philadelphia and you will agree with me that they are as skilfully devised and as beautifully constructed instruments as one can well conceive. It will be remembered that so far back as 1862 Baker Brown used the cautery in the

[1] Shown and described at the meeting of the British Gynæcological Society on June 9th, 1904.

treatment of ovarian pedicles. Keith also adopted this method and so did Lawson Tait. Byrne adopted the galvano-cautery with considerable success for operations on the uterus, especially in malignant conditions. To Skene of Brooklyn, however, is due the credit of introducing the practice of electro-hæmostasis—that is, the control of hæmorrhage by the combination of forcipressure with heat produced by electricity.[2] Jacobs of Brussels in 1899 advocated it instead of ligature, clamp, or forcipressure by lever, the advantages claimed being that there is no sloughing of the tissues, that it enables us to act on a large surface, occluding the lymphatics and opposing an obstacle to the spread of infection. Also, no bleeding surface is exposed which is calculated to form adhesions with surrounding structures. Again, where tissues are friable and the application of a ligature is risky the application of hæmostasis is safe. Jacobs used various hæmostatic clamp forceps and indicated their use in cases of ovarian cystoma and panhysterectomy, as well as in appendicectomy and resection of the omentum.[3] He had then (August, 1899) performed six abdominal hysterectomies and two ovariotomies, besides other operations, without an accident and Skene had carried out over 200 cœliotomies without any hæmorrhage. The strength of the current was regulated by the interposition of a galvanometer, the time necessary for the desiccation being from half a minute to two minutes.

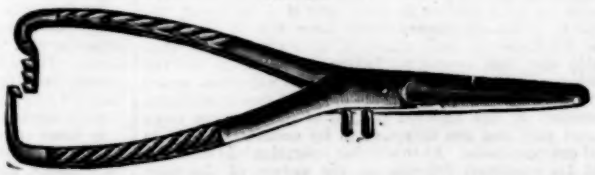
FIG. 3A.

Lever electro-hæmostatic angiotribe with straight blades. The blades open on releasing the lever.

FIG. 3B.

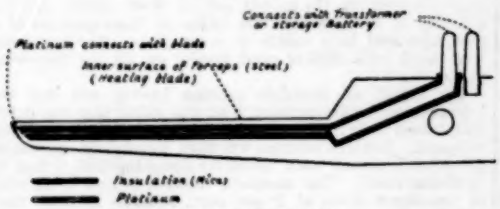
Lever electro-hæmostatic angiotribe with curved blades.

FIG. 3C.



Electro-hæmostatic forceps without lever.

FIG. 1.


Connects with Transformer or storage Battery
Platinum connects with blade
Inner surface of Forceps (steel) (heating blade)
Insulation (Mica)
Platinum

Section of the heating blade.

The main improvements aimed at by Dr. Downes were the ability to raise the heating point to 212° F., the insuring of cool shafts and handles to the instrument, greater security in the construction of the blades for the

FIG. 2.

Protecting shield.

resistance of heat, and increase in the degree of pressure exerted.[4] The outfit consists of three angiotribes with blades of different widths, a quarter, three-eighths, and half an inch, one of the angiotribes being curved; a shield to protect the surrounding parts, a cautery knife, cable, transformer for use with the continuous or the alternating current, and the necessary electric supply. A maximum current of 60 ampères is necessary and the platinum in all the instruments should be of the same weight. The advantage of this high ampèrage is that the heat developed in the platinum causes the blades to heat more rapidly and effectually than with the lesser current, while there is less risk of burning out the platinum. The cable used is composed of mineral and rubber and will stand indefinite boiling, while it can be made in two portions so that the coupler alone need be sterilised for each operation.

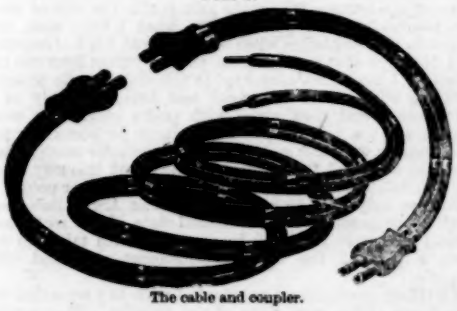
Fig. 1 shows the section of the heating blade, the inner surface being made of steel, inside which are the layers of mica insulating the platinum. It also shows the connects with the transformer of a storage battery. Fig. 2 illustrates the protecting shield. Fig. 3A shows the lever angiotribe closed and Fig. 3B the same with curved blades. On releasing the lever the handles spring open. On reclosure when the lever is adjusted greater pressure is exerted on the blades. Fig. 3C shows the angiotribe without the lever. It is less powerful in its forcipressure action than that with the lever. Fig. 4 shows the cable and coupler. Dr. Downes has devised a foot breaker for the control of the current, so that it may be turned on when required by pressure of the foot. All that is necessary to heat the instruments is gradually to turn on the rheostat of the transformer until the platinum in the cautery knife (Fig. 5) or in the heater is a bright red. The transformer may be set at this point in the operating room, thus securing the necessary electrical supply by pressure of the foot at the required time. Water placed on the pressing surface of the blades will boil in 10, 15, or 20 seconds, according to the width of the blades already mentioned. From 10 to 30 seconds longer must be allowed after the application of the instrument for the hæmostasis.

In the latest reprint of his pamphlet on the subject Dr. Downes enters into details of the various operations—such

[2] Revue de Gynécologie, July—August, 1899.
[3] Macnaughton-Jones: Diseases of Women and Uterine Therapeutics, eighth edition, 1900.
[4] American Medicine, May 24th and Nov. 28th, 1903; also American Gynæcology, July, 1903.

as ovariotomy, salpingo-oöphorectomy, herniotomy, appendicectomy, and various intestinal operations, as well as those on the stomach—which may be performed by this method. He also describes the particulars of operations of hysterectomy, abdominal and vaginal. He has collected the particulars of 80 hysterectomies, 200 salpingo-oöphor-

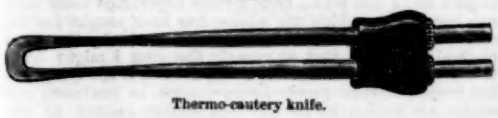
FIG. 4.



The cable and coupler.

ectomies, one nephrectomy, 200 appendicectomies, and 20 ovariotomies for ovarian cysts, 16 of the hysterectomies being for cancer. Amongst those who have specially written on this method of hæmostasis are Hirst and Charles Noble of Philadelphia, Bovée of Washington, and Goldspohn and Murphy of Chicago.

FIG. 5.



Thermo-cautery knife.

I have no experience myself of this method as I have never adopted it, but the results reported by a number of operators who have used these appliances prove that it is one which can be followed with perfect safety. "Intestinal resection and anastomosis," says Dr. Downes, "by these instruments can be ideal." He has yet to hear of hæmorrhage after an operation in which these instruments have been used. At the time of writing (November, 1903) the only accident that he was aware of was the clamping of the right ureter in hysterectomy for cancer in an operation in which he himself assisted. He has operated upon moribund cases and during 16 months he had but one death in any case in which his appliances were used, and that was not connected with the method of operation.

Messrs. Arnold and Sons have the appliances.

ON DIABETIC NEURITIS.

BY F. W. PAVY, M.D. LOND., LL.D. GLASG., F.R.S.,
CONSULTING PHYSICIAN TO GUY'S HOSPITAL.

IT is only of comparatively recent date that neuritis has been known to constitute a concomitant of diabetes. In making this statement it is not suggested that any new pathological state has presented itself. There are no grounds for thinking that the nerves escaped being affected by the abnormality existing in diabetes any more in former times than they do at present. What has happened is that knowledge has deepened and that attention is now given to symptoms that formerly failed to attract any special notice. Observation brings to our cognisance details that may have been previously allowed to pass unheeded before us, but once the mind has become centred upon them they are no longer likely to fail to receive the attention they merit.

Through circumstances of this nature I was led close upon 20 years ago to comment in the following manner upon symptoms of disordered nerve action that had forced themselves upon my attention in the course of my experience in connexion with diabetes. In the opening address to a discussion on the Clinical Aspects of Glycosuria at the meeting of the British Medical Association held at Cardiff in 1885[1] one of the points I submitted for consideration was a set of symptoms of disordered nerve action that I had recognised as frequently to be met with in association with the disease. After alluding to them as connected with ataxia I proceeded:—

> A patient, a lady aged 48, whom I saw for the first time in 1871 and who had then been diabetic for ten years, presented no symptoms of nerve disorder till February, 1880. She then began to complain of pains in her limbs and by April of that year she was decidedly ataxic. The usual account given by these patients of their condition is that they cannot feel properly in their legs, that their feet are numb, that their legs seem too heavy—as one patient expressed it, "as if he had twenty pound weights on his legs and a feeling as if his boots were a great deal too large for his feet." Darting or "lightning" pains are often complained of. Or there may be hyperæsthesia, so that a mere pinching up of the skin gives rise to great pain; or it may be the patient is unable to bear the contact of the seam of the dress against the skin on account of the suffering it causes. Not unfrequently there is deep-seated pain located, as the patient describes it, in the marrow of the bones which are tender on being grasped, and I have noticed that these pains are generally worse at night. With this there is the usual loss or impairment of the patellar tendon reflex. Sometimes pains and manifestations of perverted sensibility are noticed without ataxia. It is not always the legs that are affected; the arms may suffer as happened in the case of a gentleman who had been to see me several times for diabetes. This patient had done very well—better, indeed, than might have been expected, for he had not exercised the care that prudence would dictate he ought to have shown in the matter of diet, having frequently indulged in champagne, sweets, and such-like articles. Within the last year or so, however, he has had these nerve troubles in one arm. They were put down by the local practitioner to gout, but the skin and flesh were tender and the bone was painful; there was, moreover, some wasting of the limb. Under the circumstances I sent him to Dr. de Watteville to see what galvanism would do for him.

Such is the narrative I gave in 1885 of the symptoms of disordered nerve action that I had noticed sufficiently often in connexion with diabetes to lead me to consider that they in some way or other constituted concomitant phenomena of the disease. It was in 1881 that my mind became possessed of the idea of giving fixed attention to the matter and I soon became struck with surprise at the frequency with which, when looked for, symptoms in one form or another of the condition in question were met with.

The description given, which as far as I am aware was the first to deal in a comprehensive manner with the variety of symptoms noticed to occur, affords a representation that meets our knowledge of the present day. Bouchard[2] about a year prior to the date of my communication drew attention to the loss of the tendon reflexes that may occur in association with diabetes, but his remarks only touched upon this particular point and were mainly directed to enlarging on the bearings of the symptoms as a diagnostic and prognostic sign in relation to diabetes.

Loss of patellar tendon reflex, it will be noted, is included in my sketch of nerve abnormalities depicted above. In their entirety the symptoms enumerated coincide with those met with in locomotor ataxia and at the time I wrote I viewed them as the result of lesion in the spinal cord. Our knowledge regarding peripheral neuritis was then in a developing stage and phenomena that are now known to be due to neuritis had previously been put down to lesion of the cord. The various symptoms of disordered nerve action associated with alcoholism were formerly attributed to disease of the spinal cord. These were the first to be shown to have been classified wrongly and to be in reality the result of lesion in the nerves. The train of symptoms associated with diabetes subsequently followed and became recognised as arising from nerve lesion. In turn the transfer has been made for the symptoms produced by certain mineral toxic agents, as, for instance, lead, arsenic, &c., and by the toxins of diphtheria and certain other diseases. Originally regarded as referable to disease of the spinal cord, they are now recognised as due to a morbid change occurring within the substance of the nerves.

Neuritis without dissent now occupies an established position as a source in some cases of symptoms so allied to those resulting from spinal disease as to have led former pathologists to regard them in such light. There is evidence to show that the change of view had been for a long time working forward but it was especially in the decade of 1880–90 that the consummation may be looked upon as having taken place. The histological change occurring in the nerve has been more studied in the alcoholic and some other

[1] THE LANCET, Dec. 12th, 1885, p. 1086.
[2] Progrès Médical, 1884, p. 219.

varieties of neuritis than in that of diabetes, but the evidence that has been obtained in connexion with the latter, in the instances where the opportunity of examination has occurred, accords with that pertaining to the former. A subdued form of inflammation may be looked upon as standing at the bottom of the pathological change and the lesion noticeable consists of advancing degeneration, ending in necrosis of the proper nerve texture. In this way the functional capacity of the nerve becomes interfered with and an intelligible explanation is given of the symptoms observed. In proportion to the loss of proper structural integrity, so is it to be expected that loss of functional power should occur and observation shows that these phenomena in reality run together.

Seeing that the effect of the lesion under consideration is more or less impairment of functional power of the nerve fibrils affected the symptoms that follow will depend jointly upon the particular fibrils involved and the extent to which the morbid change in them has advanced. We have to look then for the occurrence of motor and sensory disturbances, and as the nerves, in addition to their motor and sensory filaments, contain filaments connected with the sympathetic system, vaso-motor and nutritional disturbances are likewise found to occur. Symptoms of an exceedingly varied nature thus present themselves in cases of diabetic and, of course, also in other forms of peripheral neuritis, but they fall into the natural groupings to which I will proceed to give attention, taking them in the order of motor, sensory, reflex, vaso-motor, and nutritional.

Cramp is a motor phenomenon but it occurs as a symptom belonging to diabetes without signs of the existence of neuritis. It is especially noticeable in connexion with the early stage of cases in which the amount of sugar in the urine stands high and I consider it may be regarded as attributable to the direct effect of the sugar that is passing through the system upon the muscle, looking at the speediness with which the condition disappears under the reduction or removal of the sugar from the urine by the appropriate measures of treatment.

The motor derangement produced by peripheral neuritis accords with that of locomotor ataxia. It consists, therefore, of a want of proper coördinating power over the muscles instead of ordinary paralysis. Patients are sometimes in a distressed state of mind at the difficulty they experience in walking and fear they are going to lose the use of their legs. They think their condition arises from loss of muscular power due to paralysis, but they may be easily convinced otherwise by desiring them when seated to straighten out the leg and permitting them to see the power they possess of resisting attempts to bend it. With complicated movements as in walking a properly balanced play of individual muscles is called into requisition. The lesion of the nerve fibrils is irregularly dispersed and at the same time varies in intensity. No wonder in such circumstances that there should be the manifestation of disturbed coördinating power that is observed.

As a rule the ataxia in diabetic neuritis does not reach the advanced stage that is met with in some other forms of disease producing it. I have seen in some cases pronounced disablement from it but not the extreme disablement that may be met with in alcoholic neuritis or in tabes dorsalis. In a severe case of tabes there is a very characteristic kind of walk. The walk of neuritis, although ataxic, does not reach this. It is a common thing to find that the patient cannot satisfactorily get along without the aid of a stick or an umbrella or the arm of a friend. His gait is unsteady. He feels insecure upon his legs from a want of balancing power and requires the aid of something, and a very little will suffice, to steady him. At the beginning the condition is more or less like that of a slightly intoxicated person and repeatedly I have been told by patients that they have often felt conscious of walking so unsteadily as to lead to their pulling themselves together and walking at their best lest persons who were coming behind them might form an idea which they would not like to be entertained. Indeed, I am able to quote one case in which the circumstances were such as actually to call for my giving a certificate to rectify an erroneous conclusion that had been formed. The patient was a Nonconformist minister and a damaging report had become spread about with regard to him founded upon the resemblance of his gait to that of an intoxicated person.

It occasionally happens that a certain amount of ataxia is noticed by the patient without any of the sensory phenomena of neuritis being observable and in cases of a mixed nature the ataxia may stand out of proportion to the sensory phenomena. On the other hand, the converse may occur and with little or no ataxia there may be pronounced trouble of a sensory kind discernible. The two certainly are not always conjoined and the precise symptoms occurring obviously depend upon the particular nerve fibrils that constitute the seat of lesion. The nerves of the upper extremities are far less prone to be implicated than those of the lower. Whilst the gait is allied to that of tabes the neuritic patient, according to what I have seen, can maintain his equilibrium when standing with his feet together and his eyes shut to a far more perfect extent than can the tabetic. I have often submitted to this test diabetic patients suffering with ataxic symptoms and have, certainly as a rule, found that they stand with pretty nearly the same steadiness as a healthy person. It must be borne in mind in connexion with this matter that the muscular sense comes into play as one of the factors concerned and this may be at the foundation of the difference alluded to. Other points of difference may here be referred to. The Argyll-Robertson pupil phenomenon and the abnormal state of the rectal and vesical sphincters met with in connexion with tabes do not form a part of the motor derangement associated with neuritis.

Fibrillary contractions unattended with any sensation are sometimes visible over some of the muscles. They appear like wavy oscillations or twitchings under the skin and doubtless depend on an exciting effect exerted by the lesion on particular nerve fibrils.

The sensory symptoms of neuritis are with marked frequency met with as an accompaniment of diabetes and have often been misinterpreted by the medical practitioner. It has not been uncommon for them to have been put down to gout and I can recall from former experience more than one instance in which my advice has been sought for the diabetes and the suggestion has been made by the local medical attendant that as regards the gout I might leave this to him to look after. It is unfortunate if the symptoms fail to receive their proper interpretation, as treatment can render no service unless directed to the control of the diabetes which lies at the root of the trouble.

There is much variety in the symptoms complained of which is not to be wondered at seeing that the precise location and the extent of the lesion exert their influence on the result occurring. Phenomena arising from exalted activity on the one hand, or impaired activity on the other, are in different cases noticeable. Hyperæsthesia localised to different parts frequently exists. At other times there may be numbness, tingling, sensation of "pins and needles," and other paræsthesiæ spoken of as present. Sometimes the soles of the feet are extremely tender, rendering walking painful, or in other cases the patient may assert that he does not feel the ground properly or that it seems to him as though he were walking on pebbles or on pointed projections. Aching, deep-seated pains in the limbs, sometimes conjoined with "lightning" pains, may be experienced and it is often stated that there appears to be a tenderness of the flesh and bones. Usually the pain is worse at night than in the day and the patient may say that he finds it difficult to place his legs in a sufficiently comfortable position to enable him to get off to sleep. The tenderness of the limbs may be such as occasionally to lead to the employment of a pillow or something of the kind to escape from the distress occasioned by one leg resting on the other. Whilst it is infinitely more common to find the legs constituting the seat of neuritis than the upper limbs yet sometimes the latter are affected and much pain as a result may be experienced in them. I may state that I have also upon a few occasions come across waist girdle pain cases comparable to those met with in tabes. In one the distress occasioned was exceedingly severe.

The reflexes give the earliest sign of the impaired nerve power occasioned by neuritis and the knee reflex is the one that is ordinarily appealed to for information upon the point. As I have already stated, much was made of the knee phenomenon when it was first recognised as an accompaniment of diabetes and somewhat wild speculations were framed regarding its diagnostic and prognostic value. In reality it may be regarded as simply an issue of the toxic action of the sugar contaminating the system upon the nerves. Afferent sensory and efferent motor nerves with an intervening impulse-producing centre are involved in the operation of reflex activity and with such a working continuity needful it is not surprising that the phenomenon

under consideration should stand in the position it does as an early sign of nerve implication arising from diabetes.

Absence of knee-jerk constitutes a very common accompaniment of diabetes. I do not know that any advantage is to be derived from saying more than this about the frequency of the association. The symptom is met with in all types of the disease where the passage of sugar to a pronounced extent has for some time occurred. In a chronic case of middle and after-middle life that has not been kept under proper control I consider it may be looked upon as exceptional for escape from loss of knee-jerk to occur. Duration seems to constitute a more important factor in connexion with the matter than intensity simply as such. The loss of knee-jerk may occur and the condition subsequently become rectified. This cannot be looked for unless amelioration as regards the diabetic state should take place. The symptom constituting, it may be considered, the primary effect of the toxic influence of the sugar traversing the system upon the nerves, so long as the sugar is there the cause continues in operation and maintains the condition, but if the sugar should be made to disappear the opportunity is given for the nerves to recover their natural state and thence for the symptom to subside. With a recurrence of sugar in the system a return of the symptom, as might reasonably be expected, is liable to occur.

(To be continued.)

THE TREATMENT OF HÆMORRHOIDS AND ALLIED CONDITIONS BY OSCILLATORY CURRENTS OF HIGH TENSION.

BASED ON AN EXPERIENCE OF 118 CASES.

BY T. J. BOKENHAM, M.R.C.S. ENG., L.R.C.P. LOND.

THERE are probably few individuals who reach middle age without having at some time suffered from some form of rectal congestion. The trouble is fortunately in most cases of brief duration and yields to one or other of the many domestic remedies for such conditions. Still, there remains a goodly proportion of sufferers who after a greater or lesser number of recurrences are compelled to seek advice. It is the fear of an operation being advised which deters many from doing so more promptly, and as the difficulty of affording relief is far less in recent cases than in those which have been allowed to become chronic it seems well to give careful consideration to any proposed method of treatment which tends to reduce the proportion of cases for which operative measures are usually required. Such an alternative was suggested in 1897 by Professor Doumer of Lille and the method has since been tried by many others both on the continent and in this country.

The advantages claimed by Doumer for his method of treatment of hæmorrhoids and sphincter fissures by currents of "high frequency"—viz., that the treatment is painless, that it involves no interference with ordinary occupations, and that it effects a cure in a very high percentage of cases treated—are so striking that should these claims be well founded the method certainly deserves to be more widely known. Analysis of the cases published by foreign observers shows a remarkable consensus of opinion in favour of the electric method of treatment, and it seems to have been admitted pretty generally by all who have put matters to a practical test that (1) Doumer's method is strikingly and quickly successful in cases of sphincter fissure and in healing the small fissures so often associated with hæmorrhoids; (2) it is valuable in relieving pruritus ani associated with similar conditions; (3) its value in the treatment of external and internal piles is greatest in early cases which do not exhibit excessive hyperplasia and thickening of the tissues (it affords less certain relief when acute inflammatory conditions exist); and (4) in cases of very old standing accompanied by much hypertrophic change and infiltration of the hæmorrhoidal tissues the treatment gives less certain results and at best has to be persevered in for long periods.

During the past two and a half years I have had opportunity of applying the treatment as advocated by Doumer in considerably over 100 cases of rectal trouble of varying severity so that I feel fully justified in presenting the following brief outline of the method itself and of the results obtained by it in my hands.

The method.—All that one needs is the group of transformers, condensers, oscillator, &c., generally known as a "high-frequency" installation, and a few metal and glass electrodes of various sizes and forms. Doumer seems to prefer an electrode of conical shape, but I think that the exact form is of minor importance so long as the electrode can be passed right through both sphincters and is of such a diameter that its surface can come into intimate contact with every portion of the area to be dealt with. The glass electrodes used have in some cases been filled with a conducting material such as granulated carbon or acidulated water, while in others they are of the "vacuum" type. Personally, I prefer these last, and in those which I now use the vacuum has been carried to such a point that, when excited, there is an abundant production of x rays. I find that an electrode of low vacuum is more unpleasant to the patient and also of less therapeutic efficacy. When metal electrodes are used currents of considerable quantity and very high potential can be applied to the patient without producing any local sensation beyond a feeling of slight warmth. In some instances I have in this manner employed a current of from 450 to 500 milliampères (measured by a hot-wire instrument) and of such a high potential that a thick spark over two inches long could be obtained on approaching any uncharged capacity to the patient's body. In using the glass electrodes a good deal of care is necessary and only comparatively small quantities (generally not exceeding from 100 to 150 milliampères) can be applied by their means without risk of causing both painful and undesirable local reactions. It is therefore necessary to attend carefully to the various points of adjustment in order to secure the optimum conditions of current intensity, pressure, and frequency of oscillation for the particular electrode and patient concerned. These are matters which can only be learnt by experience.

The duration of each application need seldom exceed 15 minutes at any one time. With a really powerful installation it is very easy to do too much and a local application of five minutes' duration will often suffice. The number of applications needed have varied considerably. Five or six applications may suffice for the sound healing of many cases of fissure, as also for the relief of recent hæmorrhoids, but in the more chronic cases a treatment extending over some three or four weeks or even longer may be indicated. In these last cases it is most probable that the electric treatment acts not only locally but also by a general influence exercised upon the processes of metabolism in the body.

In the following notes I have endeavoured to present in as concise a form as possible the data concerning the character of the cases treated by myself, the number of each kind, the duration of treatment, and the final result obtained. I may add that no case is included in which an interval of at least two months has not elapsed since the last electrical application and that wherever possible I have taken the precaution to ascertain the actual present condition of the patient.

1. *Simple fissures.*—Number of cases, 13. Number of applications, from 5 to 8. Result: Perfect healing in every case. Sphincter spasm was an almost constant feature in these cases and the prompt relief of this trouble was a very gratifying early result of the treatment.

2. *Acute or recent capillary piles.*—Number of cases, 25. Number of applications, from 4 to 11. Result: Cured, 14; greatly relieved, 9; treatment abandoned in 2.

3. *Recurrent cases of external and internal piles without marked hypertrophic changes.*—Number of cases, 31. Number of applications, from 9 to 18. Result: Cured, 6; greatly relieved, 20; improved, 5.

It is a satisfactory feature of all the cases comprising these three groups that they seldom required prolonged treatment, that improvement commenced almost at once, and that the almost invariably associated constipation was generally diminished or cured along with the local trouble.

4. *Chronic cases with thickened irritable folds of skin but without marked venous congestion.*—Number of cases, 12. Number of applications, from 7 to 15. Result: Cured, none; greatly relieved, 6; improved, 6.

5. *Large venous external and internal piles.*—Number of cases, 16. Number of applications, from 12 to 30. Result: Improved 7; failures, 9. Of these cases I may mention that

two were cases of recurrence after operation; nearly all were of long standing and complicated with chronic gastro-intestinal disorders. For such cases electricity has not, in my hands at least, shown marked superiority over other and better known methods of treatment, although its use seems quite justifiable where operative treatment is positively refused.

6. *Post-partum cases (really instances of partial rectal prolapse with feeble sphincter muscle).*—Number of cases, 6. Number of applications, from 8 to 19. Result: Cured, 4; greatly relieved, 2. In all these cases the general tonic effect on the patient was quite as remarkable as the effect upon the local trouble.

7. *Pruritus ani, with moist eczematous condition of the parts.*—Number of cases, 15. Number of applications, from 4 to 7. Result: Cured in every case.

The above is a very brief outline of my results, but I trust that it may suffice to indicate in some measure the advantages and also the limitations of this variety of electrical treatment as applied to hæmorrhoids and other minor troubles of the rectum and anus. While the results as regards complete cures doubtless leave much to be desired they are still far superior to those obtained by any other local treatment short of operation. With experience also one is getting to select one's cases more carefully and there are many among those here recorded which I would not now undertake. It must also be remembered that hæmorrhoids are in many instances merely a symptom and result of hepatic or gastro-intestinal troubles. Where that is the case it will be idle to expect anything like a radical cure so long as the exciting cause remains.

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ACCIDENTAL VACCINIA OF THE NASAL CAVITY.

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THE following case is thought worthy of publication on account of the rarity of the condition as shown by previously reported cases, of which I have only been able to find one (*vide* infra).

A married woman, aged 28 years, attended the throat department for out-patients at Guy's Hospital on April 22nd, 1904, for a "sore nose and inflamed cheek." Her history was as follows. Her last baby had been vaccinated 14 days previously and had "taken well." On the 19th, 11 days after the vaccination of the infant and four days before I first saw her, she felt her nose to be "sore and itching." The same evening the right ala of the nose and the adjacent part of the cheek and upper lip began to swell and "lumps" began to form beneath the lower jaw on the same side. There was no discharge from the nose. On the 20th the nose was very painful and a discharge like a lot of water came from the right nostril and the face became more swollen. She went to the front surgery of the hospital, where it was found that the œdema of the face had spread so that both cheeks were swollen, red, tender to the touch, and felt to be "throbbing" by the patient. There was no definite limiting margin to the swelling. The upper and lower lids of the right eye were so œdematous as to meet over the eyeball, but on separation the conjunctiva was found unaffected. The glands in the submaxillary region were greatly enlarged and tender. Although she "went off her food" she was not sick and could do her housework. Her temperature while in the front surgery is said to have been 98° F. She was given hot boric fomentations to be used every four hours. On the 21st she felt much worse and could not eat or do her housework. The pain in the swollen face was worse and when she came to the hospital erysipelas was seriously discussed. She also complained on this day of something running down into the back of the throat which had a nasty smell.

In the absence of Mr. F. J. Steward I saw her on the 22nd and found the condition as follows. She was a strong, healthy looking woman. The right cheek was very much swollen, including the lower lid, the right side of the nose, and the whole of the upper lip, spreading back to the temporal region and tragus of the ear behind and below over the lower jaw, gradually fusing with a large submaxillary swelling due to the enlarged glands in this region. There was no appreciable enlargement of the glands in the anterior or posterior triangles of the neck. The mucous membrane of the mouth was perfectly normal. The swelling, she said, was much less than it had been and it was scarcely appreciable on the left cheek. This swelling was due to inflammatory œdema; it did not pit on pressure but was tender to the touch. The primary cause of the trouble was quickly found. Just within the right nostril on the floor and nearer the septum than the inferior meatus was a linear ulcer, perhaps a quarter of an inch in length, with its long axis from before back. This appearance was due to a swelling of unbroken mucous membrane on either side of a linear excoriation. It showed no characteristic signs at all and even when the mucus, of which there was a great quantity, had been cleared away it would have been extremely difficult to decide upon its nature from its appearance. Fortunately additional evidence was present in the form of a small greyish area situated just below the columna of about the size of a large pin-head surrounded by a red areola. This was, undoubtedly, the result of an accidental vaccination, and I had no doubt at all that the intranasal condition was of the same nature. As mentioned above her baby had been vaccinated a fortnight before. She denied, however, that the vesicles on the baby's arm had ever been broken and said that the scabs which had formed were still intact. She never remembered the baby scratching her with its nails, but she was suckling the infant. Anyone who has watched a baby either taking the breast or being carried in the mother's lap, remembering the restless way in which babies "claw" at everything about and with special frequency the mother's face, will readily understand the ease with which inoculation is brought about. The mother had not been vaccinated since she was a baby. She was advised to continue the hot boric fomentations to the right side of the face and was ordered chinosol, 1 in 1000, to syringe the right naris with occasionally. Mr. Steward saw her on the next day and agreed with the diagnosis. On this day the intranasal infection had the greyish surface which, as pointed out by Mr. Steward at the time, is almost typical of the condition. I watched the patient subsequently until the 26th, when the vesicle inside the nose was scabbing over, and realising that she was better she did not attend further.

The only other case which I could find of accidental vaccinia of the nasal cavity was reported in the *Birmingham Medical Review* for 1903 (vol. i., p. 390) under the title of "Two Cases of Accidental Vaccination," by Dr. E. A. Sadler. In this case there were fissures found at the right ala of the nose. The patient was a woman, aged 32 years, and her baby had been vaccinated three weeks before. The mother had not been vaccinated since infancy.

Of 46 other cases of accidental vaccination which I found reported in various journals, 31 were on the face. (Of these there were on the cheek, seven; on the eyelids or conjunctiva, or both, 11; on the chin, two; and on the lips, three.) One case is reported on the tongue, eight were situated on the trunk (including the breast, the buttocks, the penis, and the vulva), and four on the limbs. The diagnosis has usually been easy owing to the typical appearance of the vesicles. As might be expected it occurs far more frequently in women than in men, but often occurs in children, especially those who sleep with recently vaccinated brothers or sisters but have themselves either never been vaccinated or have never "taken," whilst it is not infrequent in young girls who nurse a recently vaccinated baby and not having been revaccinated themselves are liable to feel the full effects of reinoculation. The signs and symptoms are similar to those following the ordinary inoculation of the arm, but one case is reported of the loss of the eye from accidental inoculation of the conjunctiva. The inoculation is frequently multiple though seldom more than three vesicles form. One extraordinary case is reported of inoculation on eczematous surfaces where 400 separate vesicles were found. This occurred in a boy, aged two years, whose infant brother had recently been vaccinated. The two children played and slept together. The constitutional symptoms in this case were not very marked.

Below is appended a list of references to cases of accidental vaccination. No case of accidental vaccinia of the nose was found either in the Proceedings of the Laryngological Society or in the *Journal of Laryngology, Rhinology, and Otology*.

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THE PRESENCE OF BACTERIA IN THE ORGANS OF HEALTHY ANIMALS.

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THE possible occurrence of bacteria in the organs of normal animals has been made on many occasions a subject of inquiry. The question is obviously an important one whether considered clinically or scientifically. The interior of the healthy organism has usually been regarded as free from bacteria and the researches of Pasteur and of Duclaux have supported this conclusion. A number of observers have brought forward additional and confirmatory evidence. On the other hand, a recent research published by Ford[1] furnishes, according to this author, experimental proof that normal organs do, as a matter of fact, contain bacteria. The paper gives a valuable *résumé* of the literature on the subject and from this I will quote before dealing with the author's own experiments. Meissner found no bacteria capable of development in the tissues of the healthy animal, whilst Zweifel concluded that germs were habitually present but of an anaerobic character and limited in their capacity for development by the amount of oxygen in the blood stream. The researches of Hauser led to a negative result, the microscopic examination and the cultures made from healthy tissues showing them to be free from bacteria in every case. Welch only found the colon bacillus in the internal organs in cases of distinct lesion of the intestinal mucosa and he further states that this bacillus does not invade the blood and organs during post-mortem decomposition. Neisser, employing the usual precautions to avoid contamination, removed the liver, spleen, kidneys, heart, lungs, and mesentery from rabbits and guinea-pigs and placed the tissues in nutritive media. The subcultures made from these at the end of two days were invariably found to be sterile. Neisser concludes "that under normal conditions no bacteria are present in the lymph or blood stream." He found, on the other hand, that after producing artificial lesions of the intestines and feeding the animals experimented on with cultures of various micro-organisms the organs of such animals contained either these bacteria or representatives of the intestinal flora. Opitz carried out experiments on cattle in the abattoir at Breslau. Portions of the mesenteric glands from cattle were carefully sterilised on the surface and small pieces were then excised and cultivated upon agar and gelatin plates. It was found that at the end of three days no bacteria had developed in the majority of the tissues tested whilst those which were isolated from a small number of decomposed tissues were spore-bearing organisms—*e.g.*, bacillus subtilis. Opitz concluded that the mesenteric glands of cattle are normally sterile and that bacteria do not pass through the healthy intestinal wall during digestion. Ford emphasises the fact that in his personal experiments the incubation of the tissues removed by him was prolonged for 17 days and that organisms were found to grow in the cultures as late as the seventeenth day. Neisser and Opitz, on the other hand, drew their conclusions from specimens which had only been incubated for a period of three days. Ford in a series of experiments made with 30 organs removed from rabbits found that 66 per cent. contained bacteria cultivable on agar, gelatin, and broth, whilst with 18 organs removed from guinea-pigs positive results were obtained in 61 per cent. The bacteria found in each case were identical and appeared in the culture media on the seventh day. It was thus only after a lapse of seven days that the organisms detected by Ford escaped from the organs which contained them and appeared as a growth in the culture soil. The bacteria found were staphylococcus albus and aureus, bacillus mesentericus, bacillus proteus, bacillus subtilis, and bacillus coli communis.

The organs of cats showed a bacterial flora different from that of the rabbits and guinea-pigs. Of 18 organs from the cat positive results were obtained in about 77 per cent. Staphylococci and colon bacilli were detected but not the bacillus subtilis or the bacillus mesentericus. The bacillus proteus, bacillus megatherium, and bacillus mycoides were found as well as two spore-bearing bacilli detected in the broth cultures. These spore-bearing forms along with the bacillus megatherium and bacillus mycoides and at times bacillus Zopfii were also present in the organs of dogs. The experiments of Ford showed that out of 96 organs taken from 34 animals 69 per cent. contained bacteria and that less than 30 per cent. were sterile. It appeared advisable in view of the exceptional character of these results to repeat the experiments and I will now briefly describe the methods which I adopted and the results. Every precaution was taken in the course of the experiments to avoid aerial or other accidental contamination. A rabbit was killed, the skin was deflected from a central linear incision, and the abdominal muscles were seared with a red-hot iron. The abdomen was opened with a sterilised scalpel and ten cubic centimetres of peptone broth were poured over the intestines and immediately drawn up, together with any peritoneal fluid, by means of a sterile syringe. The fluid obtained in this way was placed in a sterile tube for subsequent cultivation. The intestines were next drawn aside by sterile glass rods and the exposed organs or portions were removed—viz., the kidney, the suprarenals, the spleen, the liver, and a few of the mesenteric glands. Each organ was quickly passed through the flame of a Bunsen burner and then divided, one portion being dropped into a flask of nutrient broth and the other into melted agar cooled down to 45° C. The organs in the broth were broken up with a sterilised knife and both broth and agar were incubated at blood heat. The broth cultures were employed to test for aerobic and the agar cultures for the growth of anaerobic micro-organisms. After 17 days' incubation portions of the organs planted in the agar were removed with a platinum needle, transferred to broth tubes, and kept for several days at blood heat under anaerobic conditions in a modified Buchner's tube and eventually examined for bacterial growth. From the organs in broth, subcultures were made in fresh broth every third day, care being taken to avoid contamination. These subcultures were kept at blood heat, and in the event of no growth occurring were re-inoculated on the second or third day. 80 organs and the peritoneal fluid from ten rabbits were tested in the above manner. Growths were obtained from 23 organs in the aerobic broth cultures and from one rabbit two organs gave a growth of the colon bacillus. This latter result was, however, probably due to an accidental injury to the intestine and a consequent contamination of the surface of the organs. In no case was a growth of the colon bacillus obtained from an animal with uninjured intestines. The bacteria present in the broth cultures were non-pathogenic forms and their intraperitoneal injection in rabbits proved harmless. They consisted mostly of such common types as the bacillus mesentericus vulgatus along with a number of other non-pathogenic spore-bearing forms. These organisms never appeared later than the third day in the cultures and differed in no respect from similar organisms planted *per se* in peptone broth. From the anaerobic agar cultures no growth was obtained in any instance and I was unable to confirm Zweifel's statement as to the presence of anaerobic organisms in the healthy body tissues. Similar experiments were made with seven organs from the cat and a similar number from the dog. Aerobic growths of non-pathogenic forms were obtained in three out of seven organs in each case.

[1] The Bacteriology of Normal Organs, Journal of Hygiene, 1901.

On comparing these results with those of Ford, one is struck with the similarity of the organisms found and with the fact that the percentage is much lower than that obtained by him. The number of organs tested by myself was 80 and excluding the two cultures of the colon bacillus obtained in the case of one rabbit, the percentage of positive results is 26·2 per cent., or with the above-named cultures 28·7 per cent., as against 66 per cent. in the case of 30 organs tested by Ford. It is difficult to determine whether the bacteria found were really contained in the organs or not, although every care was taken to avoid contamination. It is well known that organisms of the types detected are ubiquitous in the air and it is quite possible that the germs or their spores adhered to the moist surfaces of the exposed organs during the post-mortem examination. By way of settling this point a certain number of the animal organs were sterilised in the autoclave at a temperature of 128° C. for 20 minutes. This effectually destroyed any bacteria or their spores that might happen to be present either inside or on the surface of the organs. The organs were then placed in sterile Petri dishes in the neighbourhood of an animal on which a post-mortem examination was about to be made and exposed to the air for five or ten minutes. They were next passed through the flame, placed in broth, and incubated at blood heat for two days. In short, they were subjected to exactly the same treatment as the fresh organs in the former experiments. In the case of the organs which had been exposed for ten minutes to the air of the post-mortem room only one out of five proved sterile, whilst of those exposed for five minutes only one out of seven organs was found to be sterile. The organisms found were similar to those met with in the previous experiments—viz., staphylococci and non-pathogenic saprophytic bacilli. From these experiments with autoclaved organs the presumption is strong that the organisms detected in the previous experiments were not really contained within the tissues but that they had, in spite of the precautions taken, fallen on the surface of the organs during some part of the manipulations. In Ford's experiments the frequent opening of the test-tubes may have led to similar contamination.

It is rather a significant fact that in my experiments no growth was obtained from the spleen, which was always removed first, while the mesenteric glands, which were removed last, gave the highest percentage of positive results—viz., seven out of ten glands tested. It might, of course, be suggested that the mesenteric glands form the natural channel for germs passing out of the intestine and that their presence in these glands could thus be accounted for. An injection of five cubic centimetres of broth culture of the organisms intraperitoneally into the same species of animal gave rise to no apparent symptoms or even temporary illness. The following table gives the results of the broth cultivations from the organs of ten rabbits:—

No. of rabbit.	Liver.	Heart.	Right kidney.	Left kidney.	Spleen.	Mesenteric glands.	Suprarenal.	Peritoneal fluid.	Pathogenicity.
1	—	—	—	—	—	C. & B.	—	—	—
2	—	—	—	—	—	—	—	B.	—
3	—	—	B.	—	—	B.	B.	—	—
4	B.	—	B.	—	—	B.	—	—	—
5	—	B.	—	B.	—	—	—	B.	—
6	—	—	—	C.	—	B.	—	B.	—
7	C.	—	—	C.	—	B.	C.	B.	—
8	—	—	—	—	—	B.	—	C.	—
9	B. coli.	—	—	—	—	B. coli.	—	C.	{ B. coli + / C. —
10	—	—	—	—	—	—	—	—	—

B. = bacillus; C. = coccus.

These results lead to the following conclusions: 1. That normal organs do not contain pathogenic bacteria. 2. That the presence of non-pathogenic organisms in the cultures is probably due to accidental contamination. These conclusions coincide with those arrived at by Meissner, Hauser, Neisser, Welch, and Opitz. After the above experiments were finished my attention was drawn to an article by A. Wrzosek[2] who found that on adding cultures of the bacillus prodigiosus, bacillus fluorescens, bacillus violaceus, and bacillus pyocyaneus to the food of certain animals and killing these animals from five to 20 days afterwards, these organisms were found in the mesenteric glands, lungs, liver, muscles, and spleen in from 30 to 50 per cent. of the animals. Wrzosek accounts for the small percentage of animals in which they were found by the supposition that the phagocytes destroy organisms in a very short time.

ON NON-FLAGELLATE TYPHOID BACILLI.

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THE method used by me for staining flagella with silver already described elsewhere[1] is a modification and simplification of van Ermengem's method. 1. The mordant consists of osmic acid 2 per cent., 1 part; tannin 20 per cent., 2 parts. (I find that ferrous sulphate instead of osmic acid will also give positive results, but I have not so far experimented further in this direction.) This is allowed to act for from half an hour to one hour or longer. 2. The silver solution is 0·2 per cent. silver nitrate. 3. Ammonium tannate solution. A quantity in a watch-glass sufficient for staining one slide is freshly made thus: tannin 20 per cent., 0·2 cubic centimetre; equal parts of strong ammonia and water, 1 cubic centimetre. The slides are cleaned by wiping with a cloth and then heating well on a clean wire gauze over the Bunsen flame. The emulsion is made by plunging the culture below the surface of the water in a small test-tube and allowing it gradually to dissolve off. The emulsion is made faintly milky. With a pipette I flood the cool slides with the emulsion and then allow it to drain off. When dry the slides are put in the mordant for from half an hour to one hour. They are then washed with water. To stain, a few drops of silver are put on the slide and then a few drops of ammonium tannate and the slide is rocked to and fro for a few minutes. Then I wash in water and repeat the staining three or four times. I had used this method for some time and had constantly got positive results with it, so that I felt secure in describing it last year. Shortly after having done so I was much surprised at being unable to stain flagella in a culture of typhoid bacilli which I had used for demonstrating the method. I at first thought that the method must, after all, be uncertain in spite of my previous constant successes and it was only after a considerable time that I began to suspect the cultures. Three different strains of typhoid bacilli all gave me no result. I had not a single success in many months of trials. I eventually examined these cultures in a hanging drop and found that none exhibited the characteristic active movements of typhoid bacilli but they only showed slight trembling movements. I found on consulting the most recent literature that this loss of motility was a recognised fact but I could find no statement that this was associated with a loss of flagella. It seemed to me possible that this was the cause of my failures. I procured consequently a fresh strain of typhoid bacilli recently isolated from a patient. (My previous cultures had all been very old laboratory strains.) This showed typical motility and on proceeding to stain it with the method I had been using for months without success the result was at once positive. I thought therefore I was justified in concluding that my failure to stain the old cultures was due to the fact that there were no flagella there to stain. I took further one of these cultures and passed it through a guinea-pig and isolated the bacillus from the heart's blood. The bacillus was now motile and gave the cultural characters of typhoid. I was able at the first and at all subsequent attempts to show that it now possessed flagella (the old culture still remains negative). I believe then that I am justified in concluding that we may have non-flagellate typhoid bacilli.

The bearings of this observation may be of interest. 1. It

[2] A. Wrzosek: Bulletin de l'Académie des Sciences de Cracovie, November, 1903.

[1] Thompson Yates and Johnston Laboratories Report, vol. v., Part I., 1903.

may be necessary to pass a bacillus—e.g., bacillus dysenteriæ (Shiga)—through an animal or to examine freshly isolated bacilli before we can be quite certain that they do not normally possess flagella. 2. The typhoid bacilli which were examined above and which I believe do not possess flagella were said to "react normally" in typhoid agglutination tests. If this was so then flagella cannot be an essential factor in this phenomenon.

Note.—For detecting flagella it is simplest to make a smear of the culture with a thin glass filament in the same way as a blood film, a trace of water being used for dilution. These smears when stained show the presence of flagella beautifully.

Liverpool.

A CASE OF TRAUMATIC TETANUS; RECOVERY.

BY HAROLD COLLINSON, M.B., B.S. LOND., F.R.C.S. ENG.,

RESIDENT SURGICAL OFFICER AT THE GENERAL INFIRMARY, LEEDS.

THE patient, a man, aged 25 years, was admitted to the General Infirmary, Leeds, under the care of Mr. Edward Ward, on Jan. 7th, 1903, suffering from an extensive lacerated wound of the left hand and forearm, together with compound fractures of most of the phalanges and metacarpal bones. These injuries had been caused by a "brushing" machine, one of those used in the preparation of hides. Two fingers were amputated and the wounds were partially closed after careful cleansing. A considerable amount of sloughing of the bruised tissues occurred during the next few days and the limb was dressed with boric fomentations. On Jan. 15th the temperature was normal, the wound was clean, and all seemed to be satisfactory. During the evening of the 18th—11 days after the injury—he complained of slight stiffness of the jaw and the back of the neck and also of shooting pains in the injured arm. Next morning there was distinct rigidity of the masseters and posterior cervical muscles and he was sweating profusely.

A definite diagnosis of tetanus having been made a subcutaneous injection of 20 cubic centimetres of antitetanic serum was administered at noon and permission to amputate the limb was sought for; this, however, was refused, so the wound was opened up, freely syringed out, and oxygen was applied for five minutes every quarter of an hour. Chloral hydrate in doses of 20 grains was also ordered to be given every four hours. At 11 P.M. the temperature was 100·8° F. and the pulse was 112; the patient was lying wide awake, sweating profusely, and with an anxious expression. The teeth could be separated barely a quarter of an inch. His speech was slow and indistinct and was accompanied by painful contractions of the facial muscles with a well-marked risus sardonicus. The posterior cervical and lumbar muscles were rigid and the same condition was present, but scarcely so marked, in those of the abdominal wall. Another injection of 10 cubic centimetres of serum was given and permission was again sought for amputation. This was at last obtained and at 3 A.M. on Jan. 20th the limb was amputated through the condyles of the humerus, a lower site being impossible owing to the extensive laceration of the skin of the forearm. Just before the anæsthetic was administered the patient was seized with a tetanic convulsion lasting about 30 seconds with marked opisthotonos. This was the only severe convulsive seizure that occurred. At 6 A.M. the temperature was normal and the pulse was 100. At 11 A.M. he appeared slightly better and had slept naturally; the sweating was less although the muscular rigidity was quite as marked. Another injection of serum (10 cubic centimetres) was given and repeated in the evening. In the afternoon the patient slept well and the symptoms did not progress. Chloral hydrate in doses of 20 grains was administered every four hours.

During the next two days the patient's condition remained very much the same; considerable quantities of fluid food were taken by means of a rubber tube passed through a gap in the teeth and the injection of serum was repeated twice on the 21st but omitted on the 22nd. Any sudden noise was liable to cause a temporary increase in the rigidity but there were no actual convulsions. The chloral was continued and was very effectual in dulling his sensibility and procuring sleep. On the 23rd the pulse was less frequent and the patient was drowsy, so the dose of chloral (20 grains) was administered at intervals of six, instead of four hours, but the injections of serum were recommenced twice a day. At 11.30 P.M. on the 24th the muscular rigidity was more marked with considerable arching of the lumbar spine and the pulse had risen to 92. Chloral (20 grains) was again given every four hours. On the 25th he was not nearly so well and sweated profusely; during the night there were four or five slight convulsive attacks lasting a few seconds only and exceedingly painful. The dose of chloral was increased to 25 grains but the serum was discontinued. At 11.30 P.M. on the 26th he was much better, had slept well, and the muscular rigidity was much less marked. During the next 48 hours the improvement was maintained, but on the 28th he was so drowsy and stupid that the chloral was discontinued *pro tem.* This was followed by an increase of the muscular rigidity and arching of the lumbar spine and so 20 grains of chloral were again given every six hours. During the next week improvement continued very slowly and the chloral was gradually reduced to one dose at night. On Feb. 9th the abdominal muscles again became more rigid and the chloral was again increased. By the 15th rigidity had disappeared and he was allowed to get up for an hour; this was followed by a bad night and considerable sweating and in consequence he was kept in bed for a few days longer. He was discharged on Feb. 28th quite well.

The foregoing case occupies a position intermediate between that of acute tetanus and the variety which has been designated "chronic" tetanus and would be best described as "subacute." The period of incubation was comparatively long, 11 days, and the duration of symptoms was one month. The rapidity with which the symptoms progressed during the first 24 hours of the attack was in marked contrast to the stationary condition which they assumed after amputation of the limb and the exhibition of chloral and antitetanic serum and it was only during the initial stage that the case could be described as acute.

With regard to the effect of treatment, one is confronted with the fact that in a certain proportion of subacute or "chronic" cases recovery is spontaneous and one cannot, of course, state definitely that in this particular instance amputation of the arm would not have sufficed. I am, however, inclined to attribute a considerable share in the favourable termination of the case to the effect of the free administration of chloral, for, as has been seen, the reduction of the dose was on one or two occasions followed by a distinct exacerbation of the symptoms. The injections of antitetanic serum did not produce any appreciable effect and in two other cases of acute tetanus which I have seen its administration was also futile, although in one case it was injected into the cerebral ventricle.

My thanks are due to Mr. Ward for permission to record the case.

Leeds.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

THE MODE OF INFECTION IN TUBERCULOSIS.

BY J. M. FORTESCUE-BRICKDALE, M.A., M.D. OXON.,

REGISTRAR AND PATHOLOGIST TO THE ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN, BRISTOL.

THE importance of the site of the oldest lesion as determining the mode of infection in tuberculosis is very generally assumed and the acknowledged rarity of primary abdominal tuberculosis in children, as seen in post-mortem records, is adduced as one argument against the frequency of infection by means of milk from tuberculous cows. In this connexion the following case in which I recently performed a necropsy is, I think, suggestive.

The child, a girl, aged five years, was born of a

mother who was suffering from phthisis and was suckled till within a week of the death of the mother which occurred when the child was ten months old. The home surroundings were said to be healthy. The patient was first admitted to the Royal Hospital for Sick Children and Women, Bristol, in June, 1900 (at two years of age), for otorrhœa, under the care of Mr. H. Elwin Harris, to whom I am indebted for leave to publish the clinical history. She was then found to have phlyctenular conjunctivitis (worse in the left eye), left facial paralysis, and a foul, purulent, sanious discharge from the left ear. She was thin, anæmic, and of sallow complexion. The spleen and liver could be felt below the ribs and her teeth were carious. There were also signs of consolidation at both apices. On Oct. 6th Mr. Harris operated on the left ear in the usual manner. In January, 1901, Klebs-Löffler bacilli were found in the nose and throat, and these were continuously present till August, when they were found to be non-virulent. The child was discharged much improved in general condition in October. In November she was again admitted for necrosis of the jaw, which was successfully operated on by Mr. Harris and she was discharged in the following January (1902). There is no note of the then pulmonary condition. On August 18th, 1903, she was admitted for the third time for recurrence of the discharge from the ear. She was thin and anæmic but there were no physical signs in the lungs. She developed, however, symptoms of intracranial trouble and Mr. Harris explored the temporo-sphenoidal lobe and opened an abscess containing green offensive pus. With drainage improvement occurred but 14 days after operation pyrexia and drowsiness set in and in spite of a free escape of pus she died on Oct. 1st.

Post mortem the cerebral sinuses were found to be healthy. There was a little basal meningitis, mainly on the pons, but there were no tubercles. There were numerous deep-seated abscesses in the left temporo-sphenoidal lobe and a calcareous mass about two millimetres long in the right lobe of the cerebellum. There were some fairly recent adhesions of the pleuræ; the apices of both lungs were puckered and scarred but showed no active disease. The tracheal, bronchial, and superior and inferior mediastinal glands were enlarged, hard, and yellow, but not much matted together. In the intestine a few of Peyer's patches were congested but there was no ulceration or scarring. A few mesenteric glands showed tuberculous foci. The liver appeared fatty. There was no lardaceous disease of any organ. The other organs were healthy.

It is unfortunate that we have no bacteriological data as to the mother's milk or the original discharge from the left ear. It is therefore possible to suppose that the earliest lesion was in this situation and that no infection by milk took place. This, perhaps, would be supported by Dr. Allan Macfadyen's recent experiments on monkeys, which showed a tendency of human tubercle bacilli to produce intestinal ulcerations when ingested.[1] The calcareous nodule, though on the opposite side, might be considered to support this view. But it is at least possible that the original ear trouble was due to the Klebs-Löffler bacilli and I cannot help feeling that the chances that the mother's milk contained tubercle bacilli are great. If this was so it follows that the absence of a "primary" manifestation of tuberculosis in the abdomen does not necessarily exclude the possibility of infection by milk.

Bristol.

TREATMENT OF CHRONIC ULCER OF THE LEG OF LONG STANDING.

By HORATIO W. A. COWAN, M.B., C.M. ABERD.

AT the beginning of the present year I was called to a woman, aged 54 years, who had had a chronic sloughing ulcer for 22 years situated on the outside of the left leg, some ten inches long and three inches wide, with indurated edges and some thrombosis of the veins of the inside of the knee. Having first cleansed the ulcer with charcoal poultices for two days I applied wet buttercloth and then spread antiphlogistine over it after which cotton wool and a bandage were put on. This was done every day by the patient's friends for four months. The ulcer is now quite healed over and the induration is all gone. She is able to resume her ordinary housework. I publish this case in the hope that it might be useful to others as Unna's paste and all sorts of methods had been previously tried. I may say that I have no personal interest in antiphlogistine.

Fitzroy-square, W.

[1] THE LANCET, Sept. 12th, 1903, p. 704.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

METROPOLITAN HOSPITAL.

A CASE OF BRONCHIECTASIS TREATED BY EXTERNAL DRAINAGE.

(Under the care of Dr. A. T. DAVIES.)

FOR the notes of the case we are indebted to Mr. A. Denham White, senior house physician.

The patient, a man, aged 32 years, was admitted into the Metropolitan Hospital on Jan. 14th, 1904. For ten days preceding his admission he had suffered from cough accompanied by profuse expectoration and gradually increasing pain in the right side. Two days before admission he became much worse. His breathing was more difficult and the expectoration became very offensive. Previously to the onset of this illness he had been a healthy man. There was no history indicative of phthisis affecting either himself or his family. When admitted the patient was extremely ill, the face was drawn, and the complexion was sallow. His temperature was 101° F., the pulse was 124, and the respirations were 36 to the minute. His breath was very foul and he brought up large quantities of muco-purulent material. Physical examination revealed the presence of extremely marked general bronchitis, in addition to which there was dulness on the right side extending in front from the third intercostal space and reaching the angle of the scapula behind. The breath sounds all over this area were very faint and assumed a bronchial character in the apex of the axilla. Tactile vocal vibrations, though present, were very feeble and voice sounds were very poorly conducted. The signs of bronchitis over the rest of the lung were very evident. There was no cardiac dilation and the urine was free from albumin. Microscopical examination of the expectoration failed to reveal the presence of tubercle bacilli either at the time of admission or during the subsequent course of the case. Large quantities of various pyogenic organisms were, however, seen. On the following day he was no better; he sat up in bed breathing 40 to the minute, and when moved for purposes of examination or for any other reason he was seized with a violent paroxysm of coughing which lasted for several minutes during which time he brought up large quantities of foul muco-purulent sputum. A definite diagnosis was not then arrived at, but it was thought that the patient was either expectorating a purulent pleural effusion or had a bronchiectasis. No operative treatment was then decided on but an antiseptic inhalation of creasote and carbolic acid was given together with stimulants.

During the next 48 hours the signs of effusion steadily diminished till by Jan. 18th, four days after admission, the signs of fluid had disappeared, though he continued to expectorate a good deal of muco-pus and the bronchitis persisted. At this time the right side of the thorax was quite resonant, though the breath sounds remained weaker and vocal vibrations were feeble; the paroxysms of coughing were also less violent. The temperature ranged between 100° and 101° F. and the respirations between 36 and 40. On the 20th slight dulness was again noted at the right base behind and this slowly increased till by the 26th, the amount of purulent sputum increasing *pari passu*, the physical signs were as follows. At the right back there was dulness up to the angle of the scapula with very much weakened breath sounds. There was no bronchial breathing but whispered pectoriloquy could be

heard over a small area at the angle of the scapula. The note in front was not impaired and signs of general bronchitis persisted. On the following day an exploring needle was inserted in the fourth space in the mid-axillary line and foul-smelling pus was withdrawn. Accordingly it was decided to resect a rib and to drain. This was done under chloroform, the fifth rib in the mid-axillary line being chosen and about one inch was removed. The lung was found to be pressed tightly against and adherent to the chest wall, entirely obliterating the pleural cavity. A needle was therefore passed into the lung for a distance of three inches and pus was again withdrawn. A large probe was then passed in the same direction into the lung and appeared to be in a large cavity in which the bent end of the probe could be freely moved about. On withdrawing the probe pus escaped, but owing to the amount of bleeding from the lung substance no further dilatation of the passage was undertaken till the following day, when the opening was enlarged with forceps and a small tube was inserted, nearly a pint of pus escaping. As a result of this treatment the patient's improvement was marked. Within 36 hours all muco-purulent expectorations had ceased, the respirations fell from 40 to 22 per minute, and the cough nearly ceased. Three days after the operation the temperature became normal and a corresponding improvement was seen in the pulse rate. The general condition became much better, the appetite returned, and the patient began to gain weight.

At this time iodine baths were being given for half an hour daily with the result that the discharge though remaining profuse was far less offensive. The improvement continued steadily until Feb. 13th when the temperature again began to rise, the expectoration of foul pus recommenced, and the wound simultaneously ceased to procure effective drainage. Accordingly on the 17th, three weeks after the first operation, a further portion of the same rib was excised under chloroform, the lung was freely incised with but little hæmorrhage resulting, and a full-size drainage-tube was inserted. The cavity appeared to be about two and a half inches in diameter and the walls were soft and spongy; several ounces of pus were evacuated. For the three days following the operation the symptoms improved, the temperature fell to normal, expectoration ceased, and the discharge became sweet. About this time the bronchitis began to clear up. Since then the improvement had continued, the discharge had slowly become less, and the cavity had diminished in size. As regards physical signs there remained dulness and extremely weak breath sounds below the level of the operation wound but the tactile vocal vibrations were increased. Above the wound the note was good and air entry and breath sounds were natural and the left lung was also natural. The patient made an uninterrupted recovery and was sent to a convalescent home on May 1st. A sinus about two inches long admitting a small probe still remained but there was no discharge and the patient when last seen on June 1st was in excellent health. He had no cough or pain and had regained his weight and strength. The only drugs given internally were the usual stimulants and expectorants, together with ichthyol in capsules containing ten grains three times a day. For permission to publish the above notes Mr. Denham White is indebted to the courtesy of Dr. Davies.

WEST NORFOLK AND LYNN HOSPITAL, KING'S LYNN.

A CASE OF LACERATION OF THE BRAIN BY CONTRECOUP.

(Under the care of Mr. H. C. ALLINSON.)

FOR the notes of the case we are indebted to Mr. Basil H. Pain, house surgeon.

On June 14th at 1 P.M. a man, aged 46 years, was taken to the West Norfolk and Lynn Hospital on an ambulance with a history of having fallen into the hold, some 15 feet deep, of a vessel unloading in the docks, and that he fell striking the back of his head on a steel plate. On removing the hood of the ambulance stretcher the man was seen lying on his left side, having recently vomited. His pulse was slow (56) and he resisted attempts to get a view of his pupils. He tried to get off the stretcher but did not speak. He was taken into the ward and an examination failed to reveal any signs of external injury. He was cold and collapsed when admitted but soon rallied. He vomited three times within the next two hours. A little later he answered rationally a few questions put to him by the sister of the ward with the single word "Yes." No paralysis could anywhere be discovered. The knee-jerks were well marked, possibly increased, and his arms and legs were held stiffly. On lightly stroking the plantar surfaces of the feet the legs were quickly withdrawn. There was no discharge from the nose or ears. The eyes were next examined but were unable to afford any assistance in diagnosis, for both showed extensive signs of old iritis, the pupils being eccentric, and in the left eye there was a large coloboma, apparently due to operative interference many years ago. Throughout the night he was very restless, a male attendant being required to keep him in bed. His pulse at 10 P.M. was 100, the respirations were 26, and the temperature was 99·6° F. The next morning a diffuse swelling was apparent over the region of the lambdoid suture. He was able to swallow fluids but never spoke. At 10 A.M. his pulse was 64, the respirations were 16, and the temperature was 99·6°. At 2 P.M. his temperature had risen to 102·4°, the pulse was 100, and the respirations were 24. At 3.30 P.M. he vomited and had great dyspnœa and cyanosis. Tongue forceps and gag being used, free air entry was obtained, but the respirations became slower and more laboured, and finally ceased, his heart continuing to beat about a minute after all respirations had ceased.

Necropsy.—A post-mortem examination revealed a small hæmatoma beneath the aponeurosis of the occipito-frontalis in the middle line in the region of the lambdoid suture. No depressed or fissured fracture could be made out on the surface of the skull, so the skull-cap was removed in the usual manner. The dura mater beneath was not torn and looked normal. The superior longitudinal sinus was empty. On stripping the dura mater off the brain, the blood-vessels running in all the sulci were seen to be much engorged and anteriorly the superior and middle frontal convolutions were reduced to pulp and mixed with blood. The base of the brain was free from injury and likewise the spinal cord. The ventricles of the brain appeared to be natural. An examination of the skull-cap showed that the sagittal suture posteriorly gaped on the slightest pulling apart of the two bones and one small bony projection between the two bones was fractured. Similarly all the sutures on the left side of the base of the skull were clearly marked out by a dark line of extravasated blood in the sutures, suggesting at first glance a fractured base, but on comparing this line with the sutures on the opposite side and stripping off all the dura mater from the base of the fossæ it was apparent that there was no fracture present. No fracture could anywhere be found except the small bony projection between the two parietals mentioned above.

Remarks by Mr. PAIN.—The points of the case which I venture to think are interesting are: 1. The patient's pupils being eccentric and a coloboma present in the left eye they afforded no aid in diagnosis of the brain lesion. 2. A specimen of urine voided some ten hours before death reduced Fehling's solution. The urine was boiled with freshly prepared Fehling's solution. No reduction took place till cooling began, when the whole suddenly turned to yellow, then to red, and cupric oxide was deposited. Some reducing substance was evidently present in the urine, the specific gravity of which was 1014 and contained a trace of albumin. 3. The injury to the frontal lobes, by what I take to be injury due to contrecoup. For permission to publish these notes I am indebted to Mr. Allinson, under whose care the case was placed.

MELBOURNE HOSPITAL.

A CASE OF GENERAL PANCREATITIS WITH JAUNDICE; CHOLECYSTENTEROSTOMY; RECOVERY.

(Under the care of Dr. W. MOORE.)

A MARRIED woman, aged 25 years, came under the care of Dr. Moore first in May, 1902, suffering from jaundice with a large tumour in the left hypochondrium and the epigastrium. The tumour was rounded, hard, non-fluctuating, and freely moveable, the percussion note over it was dull, and the dulness was continuous with that of the liver. The tumour was first noticed six years previously, when she had a sharp catching pain in the left side; since then the pain had been dull and more or less persistent. About the beginning of May, 1902, she had an attack of severe pain in the epigastrium and afterwards became markedly jaundiced.

She was then about two months pregnant. Hydatid of the liver was diagnosed and operation was advised. Operation was performed on May 13th. Dr. W. R. Boyd administered chloroform and Dr. A. S. Aitchison, under whose care the patient had been, assisted. A mid-line incision above the umbilicus at once revealed a hydatid cyst in the left lobe of the liver. The cyst contained some bile-stained fluid and a large number of daughter cysts, some whole, and some collapsed. The edges of the incision into the cyst were sutured to the upper part of the abdominal incision, the lower part of which was accurately sutured. A large rubber drain-tube was inserted into the cyst cavity. The patient made a somewhat slow recovery, not being able to leave hospital until June 28th, nearly seven weeks after the operation. A great many cysts drained away and the "adventitia" or fibrous outer wall of the sac also died and came away as a large slough. The jaundice gradually disappeared. The patient had a good deal of pain in the right side and vomited frequently, but before the end of July, 1902, she had quite recovered and was then in good health.

Dr. Moore was again asked to see the patient on March 10th, 1904. She was then very ill, was jaundiced, and was vomiting frequently and complaining of severe pain in the epigastrium. She stated that after her illness in May, 1902, she had remained very well until January, 1903, just before her confinement, when she had an attack of severe pain at the pit of the stomach immediately under the old scar. She was not jaundiced. She was confined on Jan. 15th and for the following six months her health was good. After that she began to suffer from attacks of vomiting and pain, with a feeling of fulness in the upper part of the abdomen, necessitating the loosening of her clothes about her waist. At first these attacks came on at intervals of about three months but gradually became more frequent until they occurred every week. After an attack she was always very tender in the centre of the upper part of the abdomen. For the last four weeks she has been continuously ill with pain in the epigastrium and vomiting and she also became jaundiced. Her temperature was 101° F. and at times slightly higher. She was extremely tender in the epigastrium, especially in the mid-line, so tender that it would have been quite impossible to define any tumour there unless it had been large. The abdomen was normal in appearance; the liver dulness was not increased and no enlargement (as of a hydatid) could be seen or felt. On the occasion of the first operation the cause of the jaundice was not at all clear. The hydatid was in the left lobe of the liver but it was very large and extended to the right side and so might have caused the jaundice by pressure, but this was very unlikely. There was no evidence of the cyst having leaked into the bile passages and so causing obstruction by the lodgment of a piece of membrane as occasionally happens. Dr. Moore was unable on account of the size and situation of the hydatid to examine the gall-bladder and ducts for calculi. There was no evidence of the existence of another hydatid. A gall-stone in the common duct seemed to be the most likely cause of the present pain and jaundice. It was decided to open the abdomen again.

Operation was performed on March 12th. Dr. Boyd gave the anæsthetic and Dr. Aitchison assisted as in the former operation. The abdomen was opened through the old scar by an incision from the tip of the ensiform cartilage to the umbilicus. The peritoneal cavity was easily entered as, contrary to expectations, there was only one small adherent band connecting the scar with the old hydatid, although the cyst had been drained for many weeks less than two years before. The white scar of the old hydatid was seen at the edge of the left lobe near the fissure. Lying just above the stomach a hard tumour stretching across the abdomen was felt at once. The cavity of the lesser omentum was opened and the tumour was carefully examined. It was obviously the pancreas which was enlarged throughout its whole extent and was uniformly hard and nodular; its head could be felt below the duodenum with an edge like the hard edge of a cirrhosed liver. A puncture was made near the head of the pancreas but nothing was found and there was no bleeding from the puncture. The gall-bladder and the bile-ducts were easily examined and no stone could be felt, neither could a stone be found at the orifice of the duct. The gall-bladder was considerably enlarged but was not tensely filled. A trocar was introduced into it and some thick greenish fluid withdrawn. The wall of the gall-bladder was thickened; its cut edge was almost too thick to permit of the use of the small Murphy's button which was now used to connect the gall-bladder with the hepatic flexure of the colon. A strip of iodoform gauze was placed near the communication between the gall-bladder and the bowel. The incision was closed with nine sutures of silver wire through the whole thickness of the abdominal wall and nine superficial horsehair sutures. The patient made an uninterrupted recovery. A portion of the gauze drain was removed on May 15th, another portion on the 17th, and the last piece on the 20th. A very little blood-stained serum came away along the drain. The sutures were removed on May 26th and the patient was allowed up on the 27th and went home on the 31st. The button was passed on the 28th. The jaundice lessened gradually from the time of the operation and within a fortnight had completely disappeared. There was no tenderness in the epigastrium; the patient expressed herself as feeling very well and she certainly looked well.

Remarks by Dr. MOORE.—The recovery of the patient was so rapid and so complete that one is inclined to doubt whether it could have been due entirely to the operation. Still her illness had been very persistent and was showing no signs of abatement. There can be little doubt but that the operation of cholecystenterostomy (draining the gall-bladder into the intestine) is to be preferred to that of cholecystostomy (draining the gall-bladder on to the surface).

Reviews and Notices of Books.

A Text-book of Physiology. By ISAAC OTT, A.M., M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia. With 137 illustrations. Philadelphia: F. A. Davis Company. 1904. Royal 8vo, pp. 563. Price $3 net.

THIS text-book is intended to furnish the students attending Dr. Ott's lectures delivered in the Medico-Chirurgical College of Philadelphia with an epitome of the subject of physiology. The size of the work precludes much originality in the treatment of this far-reaching branch of medical knowledge, for it is not possible in the compass of 600 pages to give more than the barest outline of even such fundamental divisions of physiology as the circulation, respiration, and digestion. The author has still further restricted the space at his disposal by introducing much histological detail which in this country is usually taught in a practical manner. This naturally leads to the omission of many facts with which the student should be familiar and which we presume are taught in the laboratory of the college; the senses of hearing and of vision together only occupy 33 pages and many of these are taken up with the anatomy of the internal ear and with the structure of the retina, the illustration accompanying the text in the latter instance being the obsolete one of Landois. Stereoscopic vision is not explained, though there is a diagram illustrating binocular vision. The best chapters are those devoted to the subjects of digestion (in which are embodied the results of Pawlow's experiments), the circulation, and animal heat, in which last section the author describes a useful calorimeter which he has devised and which is appropriate for experiments both on animals and on man. With this instrument he finds that of the entire amount of heat dissipated about 14 per cent. is thrown off from the lungs, an estimate that is probably correct. Dr. Ott was the first to demonstrate the presence of thermogenic centres in the corpora striata and in the optic thalami which act through the trophic centres in the anterior cornua. In support of this view he points out that intravenous injections of putrid blood and of a substance named β-tetrahydro-naphthalamin are followed by a great rise of temperature due to excitation of the thermogenic centres. If, however, a section be made behind the tuber cinereum no rise of temperature is to be observed. The lettering of the diagrams requires

attention; for example, in Fig. 100, which represents a transverse section of the spinal cord, there are two "T. G.'s," one for Goll's tract and the other for Gowers's. The author does not always express himself correctly; for example, in speaking of the muscular structure of the heart he observes, "the muscular fibres of the auricles consist of two kinds," the context showing that he means that the fibres are arranged in two sets or run in two directions; and again, in discussing the functions of the fifth and seventh nerves, he states that "while the trigeminus is responsible for the sensory actions of the face the facial presides over the contraction of the facial muscles of expression." "The sensory actions of the face" is not, we submit, a happy term. The text-book, when supplemented with the observations and experiments of the lecturer, will doubtless supply the students of the Philadelphian College with sufficient physiological knowledge to enable them to understand the principles on which the practice of medicine is founded but in the future editions through which we trust the work may run we think that it might be expanded with advantage to include some parts of physiology which are very curtly treated or the author might leave the histological details to the anatomist and thus obtain more space for pure physiology.

Lyon's Medical Jurisprudence for India. Third edition. Revised by Lieutenant-Colonel L. A. WADDELL, I.M.S. Calcutta, Bombay, and London: Thacker, Spink, and Co. 1904. Pp. 704. Price R.18.

THE medical officer in India in search of guidance in matters connected with medical jurisprudence cannot complain to-day of any absence of authority on this subject, for he has been fully equipped with the great work of Gibbons, a work by Collis Barry of Bombay, and now the third edition of the well-known work of Brigade-Surgeon I. B. Lyon, C.I.E., I.M.S., has appeared. The author has been fortunate enough to secure the coöperation of Lieutenant-Colonel L. A. Waddell, C.I.E., I.M.S., an officer fully qualified for the task, inasmuch as he has been professor of chemistry, Medical College, Calcutta; chemical examiner to the Governments of Bengal and India; and examiner in medical Jurisprudence, University of Calcutta. This edition will be found on examination to merit fully the favourable review which it received on its first appearance.

The work opens with an introductory chapter on Medical Relations with the Law Courts. This section contains pretty nearly all that a medical witness need know and most useful hints for giving evidence are detailed. The difficulties of detecting crime in India medico-legally are pointed out, such as the rapid decomposition of the body, the facilities for concealing dead bodies or so disposing of them that they may escape discovery, the false evidence fabricated by the police, and false confession of fictitious murder. We next come to the subject of identification of the living and the dead. Here again peculiar difficulties occur in India, due to the heat or perhaps to the ravages of beasts and birds of prey. The data for estimating the age of the living are gathered from examination of the teeth, height and weight, and some minor signs, together with the extent of ossification. We may draw attention to a simple rule propounded by Major W. J. Buchanan, I.M.S., as the result of 28,000 observations on healthy adult prisoners—namely, taking five feet as equal to 100 pounds, three pounds in weight are added for every full inch above that—e.g., 5 feet 6 inches = 100 + 3 × 6 = 118 pounds. The caste and conventional markings are clearly contrasted as they exist amongst Hindoos and Mahomedans. Lieutenant-Colonel H. H. R. Charles's researches into the differences between Oriental and European skeletons are detailed and the importance of a knowledge of them is manifest in the case of an inquiry as to the disappearance of a British soldier from cantonments when a skeleton is brought forward as that of the missing man. The section which is devoted to the examination of the dead enters fully into the signs of death; the time of onset of cadaveric changes is shown to occur, as was to be expected, considerably earlier in India than in Europe. The points especially to be noted in post-mortem examinations are given and a useful table of the weights of the various organs of adults of Bengal and Bihar is given. The author then passes on to the discussion of stains caused by blood and semen. Uhlenhuth's test for the discrimination of human blood is described; it is a specific test of great delicacy and has been found applicable to stains which had been dry for three months.

Part II. of the work discusses injuries by violence other than sexual, wounds, asphyxial deaths, burns and scalds, heat stroke, starvation, and sexual crimes and offences. The subject of unnatural sexual offences is one of the most frequent that is brought before the civil surgeon in India; unfortunately, there are no signs that can be said to be always present as indicating whether such an offence has been committed or not. A case is mentioned which gave not the slightest indication after 20 years' practice of the offence. Pregnancy in relation to crime and illegitimacy is the next subject treated of; then follow sections on matters pertaining to legitimacy and inheritance. The subject of fœticide is next dealt with; criminal abortion is undoubtedly very prevalent in India, being resorted to in order to get rid of the product of illicit intercourse or to avoid inconvenient additions to families. Hence this subject is one demanding full recognition. The various means by which abortion is produced are discussed and instances are given illustrating them. In the chapter on infanticide, a crime which is very frequent in India, the author considers the matters relating to the examination of the child, its degree of maturity, whether it lived after its birth, and the cause of the child's death. He finally details the facts concerning the examination of the alleged mother.

Lunacy in India is relatively infrequent in occurrence compared with its incidence in Europe. Thus the census of 1891 revealed a proportion only of 5 per 10,000, as against 33 per 10,000 of the population in England. The subject is considered under its various heads and the legal aspects are fully entered into. A very useful section is devoted to the diagnosis of feigned insanity. A chapter next follows on life assurance. The remaining portion of the treatise is occupied with the subject of poisoning. This section, comprising about two-fifths of the work, deals with the whole subject most exhaustively, nor is too large a portion devoted to it considering that in Bengal murder by poison occurs from three to four times more frequently than in England. Arsenic and opium are the two poisons most frequently chosen for taking human life in India and the reader will find both of them fully discussed. A series of appendices concludes the book and contains directions with regard to various medico-legal circumstances in which the Indian practitioner may want advice. The work, we may say in conclusion, forms a trustworthy guide to the subjects of which it treats.

Alcohol: its Place and Power in Legislation. By ROBINSON SOUTTAR, M.A., D.C.L. London: Hodder and Stoughton. 1904. Pp. 259. Price 3*s.* 6*d.*

THIS survey of the liquor question is based upon a dissertation which the author presented to the Faculty of Law at the University of Oxford when he was qualifying for the degree of D.C.L. Certain chapters of a non-legal character have been added and the law of licensing in Scotland has been brought up to date. The book is dedicated to the magistrates who in the matter of licensing have been constituted trustees for the common weal in the hope that a survey of matters relating to the liquor question, written in moderate

language, may prove useful at the present crisis. The author says that he has endeavoured to write without bias and that he hopes the treatise will prove serviceable to men who regard the problems arising from the use of alcohol from very different points of view. The author points out that long experience shows that where the liquor traffic is concerned State action and voluntary effort should go hand in hand. In countries such as Belgium and France, where neither legislation nor voluntary effort has attempted to check the traffic, the increase in the consumption of alcohol is most serious; in the United Kingdom, where there has been voluntary effort but not much restrictive legislation, the consumption has remained stationary; whilst in Canada, Scandinavia, and certain parts of the United States, where voluntary effort and restrictive legislation have gone hand in hand, there have been a diminished consumption of alcohol and a striking improvement in the condition of the people. The chapters giving a historical survey of licensing in England and the law of licensing are most interesting. In writing of the better-class habitual inebriate the author urges that prolonged residence, say for a year, in a retreat has sometimes a malign influence on character; that however well the retreat may be conducted there is little to help any man in 12 months' practical idleness; that the physical benefit of restraint is neutralised by the moral evil of its associations; and that the most reckless and degraded spirits set the tone which tends to weaken the best resolutions. It is, as the author says, "cheering to learn, on the authority of the Government inspector under the Inebriate Acts, that women are not harder to reclaim than men." The volume is readable and contains knowledge, clearly put, which should be assimilated by all thinking men. There is a useful bibliography at the end of the volume.

Mechanism of the Paroxysmal Neuroses. By FRANCIS HARE, M.D., Consulting Physician, Brisbane General Hospital; Inspector-General of Hospitals, Queensland. (Reprinted from the *Australian Medical Gazette*, July, August, September, and October, 1903.) Sydney: W. E. Smith. 1904. Pp. 33.

THE disorders termed by Dr. Edward Liveing "paroxysmal neuroses" constitute a well-marked group of affections including migraine, asthma, epilepsy, pseudo-angina pectoris and a few other less well-defined ailments. Dr. Hare's memoir deals with the "mechanism" of this class of neuroses which interests alike the neurologist, the general practitioner, and the alienist. During a paroxysm of any of these affections, says Dr. Hare, extensive vaso-constriction, conspicuously of the surface and especially of the surface of the extremities, is almost invariable. From a careful survey of clinical and experimental facts it appears that while vaso-constriction is the essential and primary condition in all the affections of this group, the phenomena peculiar to each neurosis are determined for the most part by correlative vascular or cardiac conditions which may occur in association, such as vaso-dilatation, inhibition of the heart beat, or both. The superficial vaso-constriction of migraine, says Dr. Hare, quoting cases seen by himself and the recorded experiences of Du Bois-Reymond and other distinguished sufferers, is compensated to some extent, if not always fully, by "an area of intense vaso-dilatation affecting some part of the cranium" and this is suggested as being the cause of the throbbing character of the pain, with its exacerbation when stooping forward and its relief when lying back. Systematic bodily exercise by promoting relaxation and hyperæmia of the muscles of the body tends to avert attacks of migraine, a fact which confirms the theory of causation above mentioned. The question as to the association of migraine with typhoid fever is discussed. "In upwards of 2000 cases of typhoid treated by myself," says Dr. Hare, "I could call to mind no attack of migraine during the continuance of distinct pyrexia." The antagonism between pyrexia and migraine is further illustrated by cases of feverish nasal catarrh, tonsillitis, erysipelas, and septic and inflammatory fevers of various sorts. The success almost invariably attending the introduction of an ordinary tape seton through the skin at the back of the neck in severe cases of migraine (Whitehead) is explained by Dr. Hare as due to the slight septic pyrexia which follows the establishment of suppuration by this method.

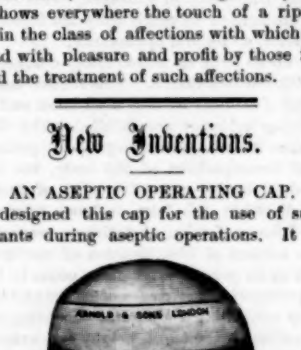
In dealing with asthma in the second part of the memoir Dr. Hare passes in review the various theories of its causation and agrees with the hypothesis of Weber, Andrew Clark, Osler, and others that it is a neurosis characterised by hyperæmia and turgescence of the mucosa of the smaller bronchial tubes. The dyspnœa of asthma becomes the true analogue of the headache of migraine. Much clinical evidence from a study of recorded cases is given in support of this view. In a degree only less than that afforded by hot baths, warm applications to the surface of the body give relief in asthma. Pyrexia is also found to exert upon asthma an influence as beneficial as it does in migraine. In discussing pseudo-angina pectoris Dr. Hare inclines to the view of Trousseau that it is sometimes quite independent of organic cardiac lesions, indeed of all organic lesions, a view also supported by Nothnagel and Lauder Brunton. A careful discussion of the symptoms enables it to be included in the group of paroxysmal neuroses. The subject of epilepsy is dealt with in the concluding chapter of the memoir. The vaso-motor theory is shown to explain many facts but, says Dr. Hare, the view that spasmodic cerebral anæmia is the proximate cause of the convulsions is too exclusive a view to take. In some cases no alteration in the cardiac or vascular condition precedes a fit (Gowers), while complex factors in the form of a primary cerebral defect of development and toxæmia are the essential morbid conditions of the epileptic constitution. Dr. Hare concludes by referring to the methods of treatment of the paroxysmal neuroses.

The memoir contains much evidence of keen and abundant clinical observation, influenced throughout by sound pathology, and shows everywhere the touch of a ripe and varied experience in the class of affections with which it deals. It may be read with pleasure and profit by those interested in the care and the treatment of such affections.

New Inventions.

AN ASEPTIC OPERATING CAP.

I HAVE designed this cap for the use of surgeons and their assistants during aseptic operations. It is made of



white holland and can be readily sterilised along with the aprons, towels, &c. As will be seen from the accompanying

illustration it covers in the whole of the head with the exception of the eyes and the area just around them and is kept *in situ* by strings of tape tied behind the neck. By its use all possible contamination of the wound by such means as dandruff falling from the hair or perspiration from the brow is avoided, while the current of expired air is directed into the lower part of the cap and away, therefore, from the wound. Hearing and speech are very little affected while it is being worn, the only drawback I have noted being that one's head feels distinctly warmer, chiefly due to the warm expired air.

It has been made for me by Messrs. Arnold and Sons, West Smithfield, London.

ARTHUR H. BURGESS, F.R.C.S. Eng., M.B., M.Sc. Vict.,
Visiting Surgeon to the Manchester Union Hospital;
Surgical Officer to the Manchester Cancer Pavilion.

THE BROMPTON HOSPITAL SANATORIUM AND CONVALESCENT HOME AT HEATHERSIDE.

IN spite of the fitfulness of the weather a large number of the friends and supporters of the Brompton Hospital assembled at the Heatherside Sanatorium,[1] near Camberley, Surrey, on the afternoon of June 25th to take part in the formal opening of that institution by the Prince and Princess of Wales. Their Royal Highnesses, attended by Sir Charles Cust and Lady Airlie, arrived at the sanatorium shortly after 4 P.M. and were received by the Right Hon. Viscount Midleton, Lord Lieutenant of Surrey, Mr. E. D. Stern, High Sheriff of Surrey, Major General the Right Hon. Lord Cheylesmore, chairman of the committee of management of the Brompton Hospital, the Duke of Wellington, K.G., and Lieutenant-General Sir John French. The 2nd Battalion of the Royal Lancaster regiment formed a guard of honour while the Surrey (Princess of Wales's) Imperial Yeomanry furnished an escort. On arriving at the dais where the ceremony took place Lord Cheylesmore presented to their Royal Highnesses Mr. George Ste. Crois Rose, vice-chairman of the building committee, Dr. C. Theodore Williams, Dr. J. Kingston Fowler, and Dr. P. Horton-Smith, members of that committee; Mr. E. T. Hall, the architect; and Mr. W. H. Theobald, the secretary. The Princess accepted from Mrs. Price, the lady superintendent, who was also presented to their Royal Highnesses, a bouquet. Among medical men present other than those already mentioned were Mr. Stanley Boyd, Dr. T. Dyke Acland, Dr. H. T. Bulstrode, Dr. T. H. Green, Dr. J. E. Pollock, Dr. Percy Kidd, Dr. Robert Maguire, Dr. Hector W. G. Mackenzie, Dr. S. H. Habershon, Dr. H. Batty Shaw, and Dr. E. Symes-Thompson. In the unavoidable absence of Lord Derby, the president of the hospital, Lord Cheylesmore read to their Royal Highnesses an address in which it was pointed out that the hospital from its foundation in the year 1841 had enjoyed the continuous patronage and support of the Royal Family, the foundation-stone of the original hospital in the Fulham-road having been laid by His Royal Highness the late Prince Consort on June 11th, 1844, and the foundation-stone of the south or extension wing having been laid on July 17th, 1879, by His Majesty King Edward VII. (then H.R.H. the Prince of Wales) in the presence of Her Majesty the Queen (then H.R.H. the Princess of Wales), H.R.H. the Princess Helena (Princess Christian of Schleswig-Holstein), H.R.H. the late Duke of Cambridge, K.G., and the Prince Christian of Schleswig-Holstein, K.G.

A prayer was then offered by the Bishop of SOUTHAMPTON.

In his reply the PRINCE OF WALES said he was glad to be present at the opening of another institution for the open-air treatment of tuberculosis. For though the death-rate from tuberculous affections in England and Wales had decreased, the dread disease was still one of the principal causes of death in the United Kingdom. Nor did the number of deaths from consumption, amounting to upwards of 60,000 a year, represent the terrible havoc which it produced in the population. For, alas, being a chronic disease many persons passed a lingering existence through its different stages and, being mostly incapacitated from work, were a burden to their families and to the State. It was with an earnest desire to alleviate the sufferings of this thus afflicted subjects that the King recently devoted a large sum of money which was handed over to His Majesty for charitable purposes to the founding of a home and sanatorium for the open-air cure. This work, which had been so courageously undertaken by the authorities of the Brompton Hospital, would entail not only a large capital but an increased annual expenditure for maintenance. Bearing in mind that its object was for the treatment of the poorest classes His Royal Highness earnestly hoped that it would meet with the hearty and liberal support of the public. At the conclusion of his speech the Prince accepted from the architect a special key with which he opened the building and then accompanied by the Princess made a tour of inspection. Later several gentlemen were presented to His Royal Highness and the Royal party drove away in a motor-car soon after 5 P.M. Tea was served for the guests during the afternoon.

[1] Vide THE LANCET, June 25th, 1904, p. 1801.

Looking Back.

FROM

THE LANCET, *SATURDAY*, JULY 1, 1826.

FOREIGN DEPARTMENT.

PHYSIOLOGY.

*Monstrosities.**

M. Hilaire announced to the Academy at the Sitting on the 3d of April, that he had instituted at Auteuil, where they carry on with success artificial incubation, a series of very curious experiments, in which he has succeeded in producing different monstrosities. One of these had in particular engaged his attention, viz. that which presented only the development of one cerebral lobe, situated on the nudian line. M. G. St. Hilaire produced this monstrosity at pleasure, in separating one half of the egg from all atmospheric contact; this he did, by plunging this half in melted wax, and letting it cool, taking care not to effect any ulterior movement. From this fact, it would be curious to recognise what is the chemical influence which the air exercises on incubation; everything leads one to imagine, that the light may exercise some part in this act. Let the case be as it may, this intelligent naturalist believes that all the varieties of the *gallinæ* are to be attributed to accidents bearing an analogy to those which he has produced by artificial means, and that these varieties perpetuate themselves afterwards by generation.

At the Sitting of the 16th, this same physiologist gave an account of some new experiments which he had undertaken for the purpose of producing artificially different kinds of monstrosities, and from which he had ascertained, that the interception of the external air from one half of an egg by the melted wax, does not always give rise to so constant an effect as he had at first imagined, but that different monstrosities are produced in the same way.

* Revue Medicale. May, 1825.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.—Professor T. Clifford Allbutt, F.R.S., distributed the prizes at the School of Medicine for Women in Hunter-street, Brunswick-square, on June 23rd. Miss J. Cock, the Dean, who presided, said that the great competition which existed at the present day precluded any chance of an increase in the number of their students, although they were the oldest school of medicine for women. The school was hampered by a heavy debt for building. Professor Allbutt, having distributed the prizes, said that a large sphere of work that could not be adequately covered by men was now open to women doctors. He thought that women should now be admitted as members to the great guilds and corporations of the profession—the College of Physicians and the College of Surgeons. A vote of thanks to Professor Allbutt for his address, proposed by Mrs. M. A. D. Scharlieb, seconded by Dr. Mercier, and supported by the Mayor of St. Pancras, was carried unanimously.

THE LANCET.

LONDON: SATURDAY, JULY 2, 1904.

Immunisation against Infection of Operation Wounds.

IN the never-ceasing warfare waged against the attacks of micro-organisms the weapons of war are many. Some of them are afforded by the body itself, for it is no passive spectator of the battle but a very valuable combatant. Indeed the exertions of the physician are chiefly directed to modifying or increasing its spontaneous efforts rather than to the addition of entirely new modes of fighting infection. The most obvious method of destroying organisms, the employment of ordinary chemical antiseptics, is only to a very slight extent available, for the microbes are in contact with the living tissues of the body and a substance capable of destroying the parasite will be only too likely to destroy the sheltering host. To a small extent, however, antiseptics can be used when they are specially antagonistic to some individual organism and it is not unlikely that the action of quinine in malaria is mainly at least to be attributed to its bactericidal action on the plasmodium. There are, however, other weapons, less obvious perhaps but more effective, which we are able now to wield with no small effect in certain cases of disease. The resisting power of the living body is no invention of the imagination. Against the human body, for instance, the attacks of many micro-organisms, fatal to some of the lower animals, are in vain. It is certain, too, that even when the body is not absolutely immune to an organism it can resist to some extent its onslaughts and this resisting power varies from day to day. Under some conditions it increases and under others it diminishes. For many years this resisting power has been recognised but it is only comparatively recently that it has been possible to measure it accurately and to gauge the effect of treatment on it. Still more recently have means been discovered by which we can to some degree at least increase or diminish this resistance of the body and it is in this power of modifying the defensive strength of the living body that, so far as we can see at present, the great hope of the future rests. On what does this immunity depend? There are several methods by which a body resists or controls the incursion of micro-organisms. Perhaps the most striking is phagocytosis, the process by which the white corpuscles, acting as the living amœbæ which they so closely resemble, envelop and destroy by digesting many microbes. This action of the leucocytes is certainly of importance but it is probable that METCHNIKOFF over-estimated its relative value, for the white corpuscles have still another mode of destroying bacteria which is of even greater effect. The leucocytes elaborate chemical substances which inhibit and destroy bacteria and the main resisting power of the body is probably attributable to this property. The alexins, as these chemical substances have been called, are especially prevalent where there is leucocytosis. After a pathogenic microbe has invaded the body still another antagonist tends to develop. Special antitoxins are formed which are antagonistic merely to the organism which has given rise to them. To the formation of antitoxins acquired immunity is due. Some of these means of combating bacteria are utilisable in disease but the surgeon has not been able to avail himself of their assistance to any great extent. Lately some progress has been made in this direction and a lecture by Professor MIKULICZ, delivered before the West London Medico-Chirurgical Society and published at p. 1 of our present issue, describes the present position of our knowledge of the subject, especially in relation to operation wounds.

During and after operations the danger of microbic infection is chiefly guarded against by strict attention to those methods and precautions which are associated with the name of LISTER. In some operations, however, as in those involving the stomach and intestines, the risk of infection of the peritoneum is exceptionally great and therefore surgeons would be glad if some additional aid could be afforded to them. It is clear, too, that it would be better if this protection could be given prophylactically rather than therapeutically, for peritoneal infection is very much more controllable at the outset than when it has widely developed. Specific immunisation is hardly practicable, for the variety of micro-organisms which may affect the peritoneum is very great, and therefore we must fall back on some other method. The double power of the leucocytes in phagocytosis and in the preparation of alexins suggests that if we can produce a general or even a local increase in the number of white corpuscles (or hyper-leucocytosis) we shall be able to repel the septic invasion. Professor MIKULICZ'S lecture dealt mainly with the various means which have been adopted in endeavouring to cause a hyper-leucocytosis and their success. It has been found that the injection of various substances into the bodies of animals, both subcutaneously and intraperitoneally, leads to a hyper-leucocytosis some seven hours later. The substances chiefly employed have been albumose, saline solution, and nucleic acid. This mode of producing hyper-leucocytosis is not likely to be of much value in treating disease which has already developed, for the body at the time of the application of the remedy is overpowered by the toxins of the invading microbes; it cannot respond to the stimulus of the injected material and a still further artificial hyper-leucocytosis is impossible. It is an entirely different question, however, whether this method cannot be employed prophylactically and much work has been done in this direction. An animal is injected with one of the immunising substances and then a few hours later, when the hyper-leucocytosis has developed, the peritoneum is infected with a culture of bacterium coli. It is found that the injection of the substances already mentioned can increase the resisting power so that in some cases 30 or 40 times the lethal dose of the bacterium coli may be injected harmlessly.

Nucleic acid seems to be the most powerful of these immunising substances and repeated injections are needed to produce the best effect. How far are these results

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IN TWO VOLUMES ANNUALLY.

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EIGHTY-SECOND YEAR.

EDITED BY THE PROPRIETORS:

THOMAS H. WAKLEY, F.R.C.S. ENG.,

AND

THOMAS WAKLEY, JUN., L.R.C.P. LOND.

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MCMIV.

applicable to man? The solution of nucleic acid which appears to be most useful is of the strength of 2 per cent. and one gramme per 75 kilogrammes of body weight was used in all cases. In man, as in the animals employed experimentally, a hyper-leucocytosis always appears to be preceded by a temporary decrease in the number of leucocytes. In man the maximum of hyper-leucocytosis occurs later than in animals and therefore Professor MIKULICZ gives the prophylactic injection 12 hours before the operation. No harmful manifestations follow the injection though there is a slight rise in temperature. As to the results, Professor MIKULICZ is of opinion that the cases treated in this way have given more favourable results than those obtained previously, not only in the proportion of cases which recovered but also in the progress of the individual cases. Of 45 laparotomies in which the abdominal cavity was exposed to infection of the contents of the stomach or the intestines or by some other infective secretion 38 recovered and in none of the seven fatal cases was peritonitis the cause of death. A valuable adjuvant to the subcutaneous injection of nucleic acid appears to be the flushing of the peritoneum with saline solution. While it is yet early to pronounce definitely on the value of this prophylactic hyper-leucocytosis we have facts enough before us to declare that the outlook of the process is exceedingly hopeful. We are justified in expecting that the developments which the future will reveal will enable us to guard against risks of septic infection even in cases where those risks now appear to be greatest.

The Site of St. George's Hospital.

A SPECIAL court of the governors of St. George's Hospital was held on June 21st at the Westminster Palace Hotel, as we reported in our columns last week, to receive the report of the committee appointed more than a year ago to consider the desirability of removing the hospital to another site. From the brief account of this meeting which we have given it will be seen that the report of the committee was on the whole not in favour of removal, although there was incorporated within it the report of a subcommittee which was mainly on the side of removal, while a minority report strongly signed also took this latter view. By the publication of these reports the public has become aware of the arguments relied upon by each side in a most interesting and important controversy. The site of St. George's Hospital is one of the grand sites of the world. There may be small spots in overcrowded business centres in the City of London and in the business end of New York city, for example, where ground is worth more per foot, but with the exception of such spots there are probably few pieces of land in the world more pecuniarily valuable than that occupied by St. George's Hospital. A position which commands the entrance to the Royal Palace in the capital of the Empire, which marks the commencement of the most fashionable thoroughfare in that capital, and which fronts the main ingress to its greatest pleasure park, has claims to value paramount to any save the most artificial commercial conditions. It leaps to the eye that such a site is worth a very large sum of money; it is estimated, indeed, to be worth from £12,000 to £15,000 per annum as ground rents. Consequently the popular view is that to maintain a hospital upon such a site is a reckless piece of extravagance, while the idea of building a new charitable institution in the same spot suggests lunacy.

Why not, say many people—and it is the most obvious thing to say—sell this extraordinarily valuable land and with the proceeds buy land in a cheaper market, build a brand new hospital and medical school, and pay the surplus of the purchase money to the credit of the charity? Against this view we have, first, the fact, perfectly well known but apparently ignored, that the whole of the ground on which the hospital stands does not belong to the hospital, so that the sale of the site is complicated by a dual ownership. The inconvenience of this is proved by the fact that although it has been an open secret for so long that a large money offer might be entertained no purchaser has come forward willing to give a price commensurate with the estimated value of the land. Secondly, the estimated price, something between £300,000 and £400,000, when looked carefully into, does not prove to be a superabundant sum for the purchase of land more or less in the neighbourhood of Hyde Park Corner and the erection thereon of a modern hospital and medical school. As for there being any surplus for an endowment it is difficult to see how anyone can be so sanguine as to hold the view. If a hospital is to be built upon the spacious lines that would insure it freedom from all criticism for, say, 50 years, and if it is to have connected with it a completely modern medical school fit for all present demands and fit also to be adapted to all demands that can be foreseen in the future—if all this, then the purchase price of the present site would barely suffice for the immediate needs of the new building. That is to say, that so far as the charity is concerned nothing in capital would be gained by the revolution. And the public also would gain nothing that can be ascertained for certain. As the hospital stands at present it occupies a place of extreme convenience to the public. It is accessible and in the immediate neighbourhood of the constant scene of accidents of all kinds. It serves a large poor population who do not live very far from its portals, and the police will testify to its inestimable value as a station for the treatment of emergencies. These considerations prevailed with the meeting which passed by a substantial majority a motion—

"That it is not desirable at the present time and under existing circumstances to move St. George's Hospital from its present site."

Mr. C. G. HEATHCOTE, the governor who proposed this motion and who was a member of the committee which had reported on the whole question, strengthened his case by a judicious speech, pointing out that the hospital would not obtain the great benefactions which it had received from the public in the past if it were placed in Chelsea or Fulham; that they would be giving up a position unequalled in any large town in the world for healthiness, convenience, and access without any certainty of obtaining compensating advantages. He also reminded the meeting that the hospital as it stands is not an ancient insanitary barrack but a thoroughly well-equipped and efficient place for dealing with disease. This is another point that seems to have escaped the critics of the policy of the governors of St. George's Hospital. There is no need for

immediate and enormous building operations. There is much that should be done, and in all probability an early start will be made upon the buildings designed to occupy the site recently purchased from the Duke of WESTMINSTER immediately to the west of the existing structure, but until such a time as it is convenient to start rebuilding the present hospital can carry on its work adequately. Mr. R. H. C. HARRISON, another governor who had also been upon the committee and who was one of the signatories of the minority report, fairly, even with moderation, advanced the view that the hospital ought to be moved to a less expensive site because, as trustees of a charity supported by voluntary contributions, the governors were not justified in remaining upon or rebuilding the hospital upon such valuable ground. His argument, as we have seen, in spite of its apparent force, is damaged by the actual facts of the case. The meeting saw this and voted in favour of not exchanging the substance for the shadow. The good of moving is problematical, the benefits to the charity and the public of remaining at "the corner" with which the hospital has been historically associated for so long are incontestable. The vote of the governors pledges them to use every endeavour to erect and to maintain upon their beautiful site a building adequate for the continuance of the splendid public services of the charity.

The Introduction of Beri-beri into South Africa.

DURING last week public attention was aroused by the report that beri-beri had been introduced into South Africa and the matter received attention in both Houses of Parliament but without any light being thrown upon the subject. Further questions have been addressed to the Colonial Secretary this week but they found him for a long time without anything to say. No official information was received until Wednesday last confirming the report from private sources that a tropical disease new to the locality had broken out among the imported coolies. It would be supposed that the knowledge that such an event had taken place would be enough to justify the reception of the intelligence with gravity in Parliament but when Dr. C. F. HUTCHINSON, the Member for Rye, who was the first to ask for information upon the subject, referred to beri-beri as a disease of an intensely infectious and dangerous character, the Colonial Secretary replied, as though dismissing the matter, that he had every confidence that the methods used for dealing with the importation of plague would be employed with success. Dr. HUTCHINSON called this answer unsatisfactory, as indeed it was, but his repeated statement that the matter was of urgent importance was received with laughter by many Members of the House, while the Deputy-Speaker ruled that the subject could not be discussed as it was already covered by resolutions of which notice had been given. The Marquis of RIPON then called attention to the matter in the House of Lords, as it appeared that the House of Commons was not in a position to debate the subject, when he elicited from the Foreign Secretary that in answer to a telegram sent by the Government to South Africa no official information had been received. Since then Mr. LYTTELTON stated that he had sent three telegrams and had obtained no response. At last, however, Lord MILNER replied and we now know that one transport ship bearing coolies arrived at Durban with 40 cases of beri-beri on board and that 25 cases have occurred on the Rand. The broad question of the importation of Chinese labour into South Africa is one on which we are not called upon to speak, but quite apart from all matters of political morality and commercial expediency is the enormously important consideration that the introduction of the Chinese coolie into the South African mines may lead to the establishment in our African colonies of loathsome pestilences. This apprehension has been felt by many medical men and expressed by some and the attitude of the House of Commons upon the matter cannot have much impressed our profession with the wisdom or the business methods of that assembly.

The real measure of the danger of beri-beri must not be exaggerated and when Dr. HUTCHINSON described the disease in the House of Commons as of an intensely infectious and dangerous character he would probably, had he been permitted, have qualified his words by expanding them. A great number of views have been held as to the causation of beri-beri, some of which evidently have no foundation in fact, and from the obscurity with which the subject has been thus surrounded there has arisen a too gloomy pathological view. Thus the late Dr. KYNSEY considered that one form of the disease was due to the presence of ankylostoma and possibly of trichocephalus dispar, while PEKELHARING, WINKLER, and others claim to have discovered a special beri-beri bacterium. These things require substantiation. Two theories which would certainly seem to explain the phenomena of the disease are that connected with diet and that connected with locality. With regard to diet, food deficient in nitrogenous elements or fatty elements would seem to be responsible in some cases for beri-beri. Thus formerly the disease raged in the Japanese navy. In 1882 from 30 to 40 per cent. of the sickness in the service was due to this disease and the diet was exclusively rice. In 1884 an improved dietary was introduced when the mortality from this affection fell to 137 per 1000. In 1885 a still greater improvement was effected and the death-rate then became only 6 per 1000. As to the causation by rice it was found with regard to the Javan prisons that in those in which white rice was eaten 36 gaols out of 51 were affected, whereas amongst those in which red uncleaned rice was consumed only one out of 37 gaols was attacked, the untreated seeds being richer in nitrogenous properties. Deficiency in fat has also been held to be a cause of beri-beri. At Ponto-Condor an epidemic suddenly ceased on a regimen of fat pork being given. This theory is attributed to BRÉMAND and there is not much to support it. Sir PATRICK MANSON holds the affection to be a disease of locality. This view received striking confirmation from an epidemic reported on by Mr. E. A. O. TRAVERS at the Pudoh gaol, Selangor. The gaol was occupied in January, 1895, previously to which all prisoners were confined in the old

gaol, Kuala Lampur, situated about one and a half miles distant. Whilst in the latter none of the prisoners contracted the disease, although feeding on the same rice from the same source as that given them when in the new Pudoh gaol; but the outbreak occurred immediately after a change of location of the prisoners, the supply of rice remaining the same. The mortality being so high in this new goal, the prisoners affected were transferred to the old gaol in October, 1895, in the hope that the change of residence might prove beneficial. That this was so is shown by the following statistics. In September the percentage of deaths was 31·7; in October on the transfer it sank to 15·57; in November to 6·15; and in December to 4·25. The food was exactly the same in both gaols, in fact that for the old gaol was actually cooked in the Pudoh gaol. Again there were three other large institutions in Kuala Lampur, all within three miles of the Pudoh gaol; the rice supplied to them was the same as that supplied to the Pudoh gaol; yet throughout the six years during which the disease was endemic in the Pudoh gaol no outbreak of beri-beri occurred in these three institutions. There are, in fact, good grounds for supposing that an epidemic can be cut short by changing the locality of the patients and by improving the dietary.

From this it appears that the general danger to the health of the South African colonies from the accidental introduction of beri-beri into their midst is not very great but it seems to us an extraordinarily unfortunate matter that the Government should not have been prepared to treat Dr. HUTCHINSON'S original question seriously. We cannot believe that the rules of the House would have really prevented the matter receiving attention had the Government not desired to avoid the discussion of an awkward matter. The Government ought to have taken proper steps to obtain information, for surely there is an urgent form of telegraphic question that commands attention. And they ought not to allow the Colonial Secretary to say or to suggest that "it would probably be all right about beri-beri because they had done so well about plague"—which is a perfectly fair paraphrase of Mr. LYTTELTON'S original reply. Such questions as the importation of new diseases into our colonies should be discussed in a different spirit. If a debate had ensued upon Dr. HUTCHINSON'S question it would have been elicited that no fear of a general spread of beri-beri in South Africa need be entertained. By laughter, and by the appearance of shirking the matter, an impression has been created in the public mind of insecurity.

Annotations.

"Ne quid nimis."

THE PREVENTION OF PULMONARY TUBERCULOSIS.

THE continuous progress of the movement for the prevention of consumption and other forms of tuberculosis has recently been exemplified simultaneously in the north and the south of England. In another part of our present issue we describe the opening of the sanatorium at Heatherside in Surrey by the Prince and Princess of Wales on June 25th. Suitable cases from Brompton Hospital will here enjoy, within easy access of London, climatic advantages unobtainable in the densely populated neighbourhood of the parent institution. Again, on June 29th the Society for the Prevention and Cure of Consumption in the County of Durham met in Sunderland and had under consideration the general committee's report on the work of the society since its formation in 1898. The sanatorium under the management of the society is at Horn Hall, Stanhope, and was opened in May, 1900. The report states that the experience of the last four years has proved that as good results can be obtained there by the open-air method as in the most lauded health resorts in any country. In addition the society claims to have solved the difficult problem of bringing sanatorium treatment for themselves and their families within the reach of men belonging to bodies of workmen who make small regular contributions (threepence per quarter per man). These payments provide free beds for the use of subscribing workmen and the members of their families dependent on them to the full extent of the total subscriptions. Patients who do not belong to bodies of subscribing workmen, and can pay either the whole or a part of their maintenance, are charged two guineas a week, several local authorities subscribe for the purpose of being enabled to send patients from their districts, and subscriptions are of course collected from the public for the support of free patients. Among the special measures for the prevention of the disease adopted in various parts of the county of Durham it is stated (1) that in every district except the borough of South Shields suspected sputum is examined for tubercle bacilli free of charge on application to the health authorities; (2) that voluntary notification of cases of consumption is in force in the boroughs of Sunderland, Gateshead, and Jarrow; and (3) that many local authorities offer free disinfection of rooms vacated by consumptives. The society strongly urges the establishment of homes for advanced cases in the interest not only of the patients themselves but also of the public at large. The sanatorium has 30 beds and during the year 1902–03 applications were received from 210 patients, of whom only 108 could be admitted. The average stay of each patient was 14·5 weeks and the average gain in weight was 18·3 pounds. About half of them had tubercle of both lungs and many suffered also from laryngeal affections and heart disease. On admission 59 had consolidation only of the lungs and were classed as early cases. Of these, 16 (or 27 per cent.) were sent out apparently cured, 40 (or 66 per cent.) were very much improved, and three were improved but unsuitable for further treatment. In 39 patients signs of advanced disease with loss of lung tissue were present on admission. These were classed as "cavity" cases; 26 of them left the sanatorium very much improved, seven were improved, and six were unsuitable for further treatment. The records for the four years during which the institution has been open show that out of 146 early cases discharged 99 are still at work, 22 are at home, three have been readmitted, and 25 are dead; out of 122 advanced or "cavity" cases 35 are still at work, 31 are at home, two have been readmitted, and 56 are dead These results show the extreme importance of commencing treatment in the earliest possible stage as soon as the disease is recognisable and are decidedly encouraging so far as they go, but sanatoriums ought to have, and no doubt in time will have, a merit greatly in excess of their utility as curative institutions. We refer to the immense power which they may exercise in educating the public to appreciate the advantages of ventilation, fresh air, and attention to a few simple rules of individual hygiene. When we consider that many hundreds of anxious sufferers travel far from their homes and pass the whole day reclining in open-air shelters it is impossible to avoid picturing to the mind how much these unfortunates would have been the gainers both in

health and purse if they had in their youth acquired the habit of disregarding "draughts" and always admitting plenty of fresh air to their apartments.

A VISIT OF FRENCH MEDICAL MEN TO LONDON.

Sir William S. Church, Bart., K.C.B., President of the Royal College of Physicians of London, occupied the chair at the College, Pall Mall East, London, S.W., on June 23rd on the occasion of a meeting of representative members of the profession in order to consider the arrangements which should be made to receive a party of French physicians and surgeons who propose to visit London on Oct. 10th, 11th, and 12th. On the motion of Dr. Frederick T. Roberts, seconded by Mr. Thomas Wakley, Jun., an executive committee, with Sir William Broadbent, Bart., as chairman, containing representatives of the principal hospitals and laboratories in London which the French visitors might wish to see was appointed. Sir Thomas Barlow, Bart., and Dr. J. Dundas Grant were elected treasurers, the secretarial work being entrusted to Dr. Dawson Williams and Dr. W. Jobson Horne. A guarantee fund was formed and subscriptions were promised by those present.

PARKES MEMORIAL PRIZE.

THIS prize, (which is given triennially and consists of 75 guineas and a bronze medal), has been awarded to Major R. Caldwell, R.A.M.C., for the best essay sent in upon "The Prevention of Disease amongst Armies engaged in Active Operations in the Field, with special Reference to the Sanitary Organisation of a Field Force." The essays submitted by Major E. C. Freeman and Major F. Smith, D.S.O., also of the Royal Army Medical Corps, were highly commended by the assessors. The subject of the next prize is "On the Sanitary Requirements of Naval and Military Units in Peace and War; with Suggestions for Complete Schemes of Sanitary Organisation suitable for both the Navy and the Army." The competition is open to officers of the navy, army, and Indian medical services. Essays should be submitted to the secretary of the Parkes Memorial Fund, Royal Army Medical College, Examination Hall, Victoria Embankment, London, W.C., on or before Dec. 31st, 1906.

CEREBRO-SPINAL MENINGITIS OF THE EPIDEMIC TYPE.

DURING the past four or five years much attention has been given to the study of cerebro-spinal meningitis in the United States where this disease is often prevalent in epidemic form, the researches of Councilmann who investigated the Boston epidemic of over 100 cases, and of Osler who investigated the Baltimore epidemic, having served to increase the interest and importance of the matter. In the *Medical News* of New York of June 4th Professor Henry Koplik has published an account of his studies on 77 cases of epidemic cerebro-spinal meningitis carried out by him during the last five years. 37 of these were bacteriologically examined and found to be undoubted cases, cultures of the meningococcus intracellularis of Weichselbaum being obtained from the patients in every case. 35 of the other cases were found to be due to the tubercle bacillus, one each to the pneumococcus, the staphylococcus, and the streptococcus, and two to the influenza bacillus. 15 other cases of the epidemic form were also studied by Professor Koplik and from a careful collation of the records of all these cases and from others in literature the following conclusions were drawn. As regards age infants and children are the most liable to be affected. Thus the oldest patient was only 14 years of age, 77 per cent. of the patients were under four years, and 60 per cent. were under two years of age. "My own cases," adds Professor Koplik, "are of the primary meningitic form and include at least one case of so-called posterior basic meningitis." The clinical types of the disease were the ordinary and well-known ones but a few "malignant" cases occurred which were fatal within from 24 to 36 hours. These malignant cases were marked by vomiting and subcutaneous hæmorrhages in the face, the hands, and the body. In young infants the onset of cerebro-spinal meningitis was sudden, with general convulsions, high fever, and vomiting, the fever being of the intermittent or remittent type and lasting over four weeks. Rigidity of the neck, general muscular irritability, and incipient wasting began within a few days or a week of the onset. Babinski's reflex was found to be present in 77 per cent. of the cases of tuberculous meningitis, its constancy in this affection being attributed to a probable degeneration of the pyramidal tract fibres descending from the affected Rolandic area of the brain. Kernig's sign was difficult to elicit in children below the age of two years but all children above the age of two years who suffered from cerebro-spinal meningitis exhibited this sign. Hyperæsthesia of the skin and mental irritability were observed in all cases in recent epidemics but were not so universal in previous epidemics. The blood invariably exhibited leucocytic changes. The leucocytes were of the polynuclear type in every case and varied from 20,000 to 50,000 per cubic millimetre, the lowest count being (in one case) 12,000. The cerebro-spinal fluid drawn off by lumbar puncture showed in nine out of 13 cases a predominance of leucocytes, while four showed the normal proportion. The most frequent complications of the epidemic forms of the disease were otitis media, herpes labialis, and purpura. Treatment consisted of lumbar puncture "which was especially indicated in vigorous patients," the puncture being repeated after five days if symptoms recurred after (temporary) relief. From 30 to 40 cubic centimetres of fluid were as a rule withdrawn at the operation but in exceptional cases where there was much tension double the quantity was withdrawn. Hot baths were found useful for allaying rigors, sponging was employed to lower the pyrexia, while calomel and the alkaline iodides in full doses were also serviceable.

PROVIDENT MEDICAL DISPENSARIES.

AN interesting letter was read at the annual meeting of the Metropolitan Provident Medical Association held on June 28th at 67, Eaton-square, London, S.W., in which Sir William Broadbent, after regretting his inability to attend the meeting, stated that he had for many years past given close attention to the work of the Metropolitan Provident Medical Association in providing good medical treatment for the working classes, including attendance at home. In his opinion the establishment of provident dispensaries afforded the true solution of the difficulties attending the securing of good and efficient medical advice for the self-respecting working classes. According to the annual report of the association, which was adopted by the meeting, at the end of 1903 there were 12,861 cards of membership—family and single—representing about 30,000 persons. The payments made by these provident members in small regular fees amounted to £5836. In his letter Sir William Broadbent observed that the club system of providing medical treatment by way of insurance was open to serious abuse on both sides and he considered that it would be a very good thing if the great benefit societies could affiliate themselves with the Provident Medical Association. One of the objects of the Provident Medical Association is to relieve the overcrowded hospital out-patient departments by a system of coöperation and on that point the opinion of

Sir William Broadbent, as expressed in his letter, was that as regards the working classes in hospitals, while working men and their families ought to have a first claim on hospitals as in-patients where operations were required and in cases of very serious illness, he thought it was sad when they were compelled to attend out-patient departments with the waste of time which that involved and the association and contact with the filthy and vicious people who so often crowded the waiting rooms. One of the important features of the association is cōoperation with the medical profession generally, and on that point Sir William Broadbent wrote that there ought to be an organic connexion between the provident dispensary of any locality and the neighbouring hospital by which a member of the dispensary should be entitled to prior consideration at the hospital. In the latter part of his communication Sir William Broadbent affirmed that he was quite sure that the physicians and surgeons would agree to this and he believed that most of them would be ready to see provident dispensary patients at home in consultation with the medical officer in attendance at reduced fees. A motion was unanimously passed at the meeting to establish more provident dispensaries and all the speakers seemed anxious to let everyone know that the methods of the Metropolitan Provident Medical Association did not tend to pauperise the population.

THE BIRTHDAY HONOURS.

THE list of birthday honours does not include the names of any large number of medical men or of men prominent in the scientific world. Professor James Dewar receives recognition for his important work with regard to the liquefaction and consolidation of air and hydrogen by obtaining a knighthood. Three medical men have been knighted—Dr. T. Stevenson, Dr. C. Holman, and Dr. Kendal Franks, C.B. Sir Thomas Stevenson, scientific analyst to the Home Office, became an M.D. of the University of London in 1864, and in addition to his Government appointment at the Home Office is a lecturer on medical jurisprudence at Guy's Hospital, examiner in forensic medicine at the University of Birmingham, and analyst to several counties and boroughs. His excellent contributions to the standard literature of forensic medicine and hygiene are known to all our readers. Every member of the medical profession will hail with hearty satisfaction the announcement that a knighthood has been conferred upon Dr. Holman who has worked so hard in connexion with the beneficent and educational work of Epsom College as treasurer and vice-president. Sir Constantine Holman, who received his medical education at Guy's Hospital and at the University of Edinburgh, was for many years in practice at Reigate and an outline of his professional career appeared recently in our columns on the occasion of the presentation to him by the medical profession of a testimonial. Sir Kendal Franks received his medical education at Dublin and at Leipsic. He is an M.D. of the University of Dublin and a Fellow and ex-vice-president of the Royal College of Surgeons in Ireland. He has held many important appointments and is at the present time Principal Medical Officer to H.M. Forces at Capetown. An interesting feature of the honours list this year is afforded by the decorations awarded in commemoration of the jubilee of the Crimean war. Among the recipients are Surgeon Thomas Ligertwood (retired pay), late physician and surgeon to the Royal Hospital, Chelsea, who is made a Companion of the Bath in the Military Division. He served at Alma, Inkerman, and Sebastopol. Among the new Knight Commanders of the same Order are Deputy Surgeon-General James Howard Thornton, I.M.S., C.B., and Surgeon-General Edmond Townsend, A.M.S., C.B., C.M.G., both of whom are promoted from the Companionship of the Bath. Surgeon-General William James Fawcett, A.M.S., has been made a Companion of the Bath in the Military Division, and Hon. Colonel John Edward Squire, lately commanding the Home District of the Royal Army Medical Corps (London Companies) Volunteers, a Companion of the Bath in the Civil Division. Mr. Bolton Glanvill Corney, M.R.C.S. Eng., Chief Medical Officer of the Colonial Government at Fiji, has been appointed a Companion of the Imperial Service Order. To each of the recipients of these honours we offer in the name of the medical profession hearty congratulations.

THE SANITARY INSTITUTE.

WE may remind our readers that the twenty-second congress of the Sanitary Institute will be held at Glasgow from July 25th to 30th under the presidency of the Right Hon. Lord Blythswood, Lord Lieutenant of Renfrewshire. The list of presidents of the various sections has already been published in our columns.[1] The arrangements which have been made for the convenience of intending visitors to the congress appear to be all that could be desired and we have received from the secretary (Mr. E. White Wallis) a number of documents, including the preliminary programme, setting forth the various papers that will be read at the congress, particulars of excursions and social functions, the method of obtaining cheap railway tickets to Glasgow and other places in connexion with the congress, and a list of hotels and apartments, giving the tariff, and so forth. Full particulars can be obtained from the Parkes Museum, Margaret-street, London, W., and from the local offices, City Chambers, Glasgow. Since the Sanitary Institute was formed in 1876 it has done much good work in educating the public in sanitary matters. The Parkes' Museum of Hygiene, which was instituted as a permanent memorial of Dr. Alexander Parkes, the first professor of hygiene at Netley, has also become a powerful auxiliary to the educational influence of the institute.

COLLIERY CONTRACT PRACTICE IN NORTHUMBERLAND.

PRIOR to the formation of the Northumberland and Newcastle Medical Association the medical officers to the miners in Northumberland were paid by the miners 6*d*. a fortnight per family for medical attendance, the payment being supplemented by small fees with regard to grown-up sons or lodgers. This rate of pay continued for 60 years until the association was formed, when a movement was started which proved successful to raise the fees to a minimum of 9*d*. per fortnight. The Miners' Association, we are informed, has now decided to take steps to bring about a reduction of 50 per cent. in these fees on the grounds that since the medical rates have been raised wages have fallen gravely. If the wages of the miners have fallen below a fair figure we are ready heartily to support any movement for raising them again, but the contention that the pay of the medical men should therefore be reduced is quite illogical. The pay of the medical men had to be raised (1) because the cost of medical education is double what it used to be when 6*d*. per fortnight per family was fixed as a fair figure; (2) because the medical curriculum is now five years instead of three years; (3) because unqualified assistants are no longer permitted by the General Medical Council to assist practitioners; and (4) because the modern appliances of medicine are very expensive to buy. These are the circumstances that make it impossible for medical men in justice to themselves to put up with the old standard of payment and we trust that no member of the medical profession will accept any appointment of any description in the county of Northumberland without first inquiring from

[1] THE LANCET, Feb. 13th, 1904, p. 451.

Mr. Garforth Drury, 95, Pilgrim-street, Newcastle-upon-Tyne, secretary of the Northumberland and Newcastle Medical Association, as to the circumstances of the appointment. Dr. A. Cox of Gateshead, secretary of the North of England branch of the British Medical Association, will also give information on the subject to intending applicants.

THE JAPANESE AS CHEMISTS.

PROBABLY no Eastern nation is more strongly represented than are the Japanese in the English annals of science and more particularly in literature on chemistry. They possess an undoubtedly strong faculty for original research and they combine this faculty with a sharp-sightedness as to the possibilities of practical application of the fruits of research. The Japanese chemist, in fact, unites the power of originality of the English chemist and the practical intuition of the German. At the University of Tokyo practical study is very much favoured and splendid facilities for work are provided in the laboratories and workshops. There are several distinguished Japanese chemists who are Fellows of the English Chemical Society and who were elected to the Fellowship on account of the excellence of their contributions to original science. Many elaborate papers involving long and patient laboratory investigation are printed in full in the Transactions of the society. The Japanese chemists discuss with a freedom which astonishes the Western chemist all the modern abstruse theories bearing upon the atomic theory, the constitution of matter, the theory of dissociation, and so forth. They write powerful dissertations on the views advanced by such esteemed thinkers as Ostwald, Arrhenius, Van 'tHoff, Kelvin, Thomson, Lodge, Crookes, Ramsay, and others and have offered valuable criticisms on the methods of systematising and compiling atomic weights adopted by Western chemists. Chemistry, of course, is a powerful weapon in war and there can be little doubt that amongst other things which have so far contributed to Japanese successes is a sound knowledge of explosives, their composition, action, and behaviour under a variety of conditions. When there is no longer any need for the implements of battle, and may that soon be, we may be pretty sure that the same subtle insight which is so marked a feature of the Japanese intellect will turn with equal success to the application of science to peaceful pursuits.

THE EPILEPTIC COLONY AT CHALFONT.

THE life of the epileptic is one of involuntary idleness while his existence in the community at large is a source of distress and danger to others. The epileptic farm-colony at Chalfont St. Peter, which has been in existence for ten years, provides for these sufferers a home where they can be taught under proper supervision to follow the avocations of ordinary life, to engage in industries of various kinds, and to take part in healthy outdoor games and amusements. The eleventh annual report of the colony, to which we alluded briefly last week, states that "several homes have already [lately] been opened ..... but the existing accommodation is nevertheless utterly inadequate to meet the demand for admission and funds are most urgently needed for the building of additional homes." Annual subscriptions or donations may either be given for the general purposes of the society or allocated to the building and extension fund or the maintenance fund. A contribution of £200 will reserve a bed for eligible patients nominated by the donor. A contribution of £4000 will provide and equip a home for 24 patients and will give priority of admission to a corresponding number of eligible candidates belonging to any county or other district in which the donor may be specially interested. A scheme had been prepared which if carried into effect would have resulted in the building by the London School Board of homes for epileptic children (under the jurisdiction of the London School Board) in contiguity to the Chalfont colony and the intrusting of these homes to the National Society for Employment of Epileptics which administers the Chalfont colony, a fixed weekly sum being arranged to be paid for the maintenance of each child. The number of children that would eventually have come within the scheme was estimated to be about 150. The scheme was, however, subject to the sanction of the Board of Education and on the matter being referred to it by the London School Board the former, without in any way disapproving of the scheme, expressed the opinion that in view of the approaching transfer of the functions of the School Board to the London County Council the consideration of the matter ought to be postponed. The clauses in the Education Act (1899) which stood in the way of the colony accepting the care of these children being removed by a new measure promoted by the National Society, and passed in Parliament recently, this work is now possible. At the beginning of the year 1903 there were in residence at Chalfont 114 male and 56 female colonists. During the year 22 males and 22 females were admitted and 22 males and 21 females were discharged, leaving in residence at the end of the year a total of 171. Besides the regular colonists there were received during the year ten convalescent or temporary cases. The institution has been remarkably free from scarlet fever, diphtheria, and small-pox, though outbreaks of these diseases occurred in the immediate vicinity of the colony. Only a single case of scarlet fever occurred among the colonists and the patient was at once isolated and treated with satisfactory results. Anyone interested in promoting the welfare of epileptics and desirous of any information conducive to that purpose should communicate with the secretary of the National Society for Employment of Epileptics, 12, Buckingham-street, Strand, W.C., who will always be happy to give any information and assistance in his power.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ON Thursday next, July 7th, the counting of the votes for the election of three members of the Council of the Royal College of Surgeons of England will take place. By the regulations of the College six Fellows unconnected with the Council must be present. On several occasions much delay has occurred in consequence of the difficulty of making up this number; it is therefore hoped that any Fellows who can spare the time will attend at the College on Thursday at 2 P.M. so as to enable the counting of the votes to take place. Attendance is necessary for a few minutes only and as the additions to the museum will be on view the time required may be well spent.

THE COMMERCIAL PRODUCTION OF VACCINE MATERIAL.

IN an article on Vaccine and Vaccination published in the April number of the *Bulletin of the Johns Hopkins Hospital* Dr. George Dock of Ann Arbor, Michigan, when describing the systematic cultivation of vaccine material by inoculating calves, says that the "seed" vaccine used in the inoculations is of various kinds. Sometimes it is bovine virus selected with care from well-developed vesicles and of tested bacterial purity. Sometimes it is selected humanised vaccine lymph and sometimes it is material derived more or less remotely from human variola. Often the manufacturers either do not know or are unwilling to state the source and nature of the "seed" and misrepresentation has occasionally occurred. With regard to the quality of the product he remarks that commercial vaccine virus has an unnecessarily large bacterial contamination and these organisms though usually harmless

may sometimes be pathogenic, as in the remarkable development of tetanus following vaccination in several parts of the United States in the end of 1901.[1] On the subject of the essential efficacy of the vaccine material produced by various manufacturers Dr. Dock says :—

> The purity of American vaccine is not always as perfect as it should be; how is it about the specific power, or the capacity to confer immunity against small-pox? Much of it is seriously lacking in specific power. Some makers not only admit, but advertise as a point of excellence, that their vaccine does not produce an eruption. While they do not state in advertisements that scars are not left, I have heard the scientific manager of one large firm assert before a medical society that a scar is not necessary. Not only is there no proof of this, but, on the contrary, all the evidence we have goes to show that a certain scar, not too large, not too deep, and quite different from the scar following a slough or a phlegmon, is an essential part of the result of efficient vaccination. Another manager admitted to me that his firm aimed at getting the mildest possible result from vaccination. This they did, as my observations show, by reducing the specific action, for bacterial contamination was quite marked in many points and tubes I saw in use. ..... I mention this experience as an evidence of the need of some better arrangements for the production of vaccine virus than we now possess, an arrangement by which the material would become less a commodity to be turned out according to the inclinations of those who know nothing and care little for any other than its selling qualities, and more the subject of careful elaboration and well-directed effort at improvement.

THE CONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH AT FOLKESTONE.

THE Congress of the Royal Institute of Public Health will be held at Folkestone this year from July 21st to 26th under the presidency of the Right Hon. the Earl of Radnor. In the sections of Tropical Medicine and the Early Physical Training of the Navy, Army, and Imperial Forces, of which Dr. W. J. Simpson and General Sir William Stirling, K.C.B., are respectively the presidents, papers of particular interest at the present moment will be read and discussed by Mr. James Cantlie, Colonel A. Crombie, C.B., I.M.S. (retired), Brigade-Surgeon-Lieutenant-Colonel W. Hill Climo, A.M.S. (retired), Surgeon-General G. J. H. Evatt, C.B., A.M.S. (retired), and Brigade-Surgeon-Lieutenant-Colonel James Turton, A.M.R. In the section of Comparative Pathology, Bacteriology, and Chemistry Dr. Edward E. Klein, F.R.S., is the president, the title of his address being "The Aim and Scope of Bacteriological Analyses of Water and Shell-fish with Reference to Sewage Pollution." In connexion with this congress we are in a position to state that an endeavour will be made to discuss fully the question of the Jones Sanatoriums in accordance with the suggestion of our Special Sanitary Commissioner in his articles on the Folkestone Public Health Congress and the Sandgate Scandal, the concluding one of which will be found at p. 47 of our present issue.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE sixty-third annual meeting of this association will be held on July 21st and 22nd at 11, Chandos-street, Cavendish-square, W., under the presidency of Dr. R. Percy Smith. At 9.30 A.M. on July 21st a council meeting will be held and at 11 A.M. officers of the association and members of council will be elected and other private business transacted. At 2 P.M. on the same day the President will deliver his address, after which Dr. G. E. Shuttleworth will read a paper on the Education and Treatment of Young Epileptics and Dr. C. Hubert Bond a paper on a Plea for the Closer Study of the Body Weight and its Relation to Mental Disease. On July 22nd at 10 A.M. papers will be read by Dr. A. W. Campbell and Dr. John Turner dealing respectively with Further Histological Studies in the Localisation of Cerebral Function and the Finer Anatomy of the Nervous System with Special Reference to the Doctrine of Continuity. The Psychology of Hallucinations is the title of a paper which will be read by Dr. W. H. B. Stoddart. Papers dealing with the Care and Treatment of the Insane will be read by Dr. G. M. Robertson, Dr. J. Milson Rhodes, and Mr. J. Carswell at 2 P.M. On the evening of July 21st the annual dinner will be held at the Whitehall Rooms of the Hôtel Métropole and on July 22nd, from 4 P.M. to 7 P.M., the President and Mrs. Percy Smith invite members of the association to a garden party at the Botanical Gardens, Regent's-park, N.W. Tickets for the dinner can be obtained from the honorary secretary, Dr. Robert Jones, price one guinea, including wine.

[1] THE LANCET, Sept. 13th, 1902, p. 730.

THE WEST LONDON HOSPITAL AND POST-GRADUATE COLLEGE.

THE annual dinner of the West London Hospital and Post-Graduate College was held at the Trocadéro Restaurant, Piccadilly-circus, on June 25th, Dr. J. Barry Ball occupying the chair. The dinner was well attended by the staff of the hospital and college and by post-graduate students. There were many guests, including Professor von Mikulicz of Breslau, Sir Felix Semon, Dr. F. de Havilland Hall, and Fleet-Surgeon G. Welch, R.N. During the evening various toasts were given and enthusiastically received, among them that of "The West London Hospital and the Post-Graduate College," which was responded to by the Dean, Mr. L. A. Bidwell, and that of "The Visitors," for whom Professor von Mikulicz replied. An exhibition of sleight of hand was given by Mr. Charles Bertram.

CHANGES IN THE INTERCOSTAL MUSCLES AND DIAPHRAGM IN INFECTIONS OF THE LUNG AND PLEURA.

IN the *American Journal of the Medical Sciences* for May Dr. W. M. L. Coplin has published an important paper on Changes in the Intercostal Muscles and Diaphragm in Infections of the Lung and Pleura—a subject which seems to have received little attention. Rosenbach speaks of atrophy of, and pains in, the thoracic muscles in pleurisy. Rohrer has shown that in pneumonia and pleurisy an interstitial myositis of the part of the diaphragm adjacent to the affected area occurs.[1] Dr. Coplin has studied the condition of the intercostal muscles in seven cases—two of croupous pneumonia with plastic pleurisy, two of tuberculosis of the pleura, two of pneumococcic pleurisy, and one of empyema. In the two cases of croupous pneumonia the diaphragm was also examined. Marked granular changes were found in the muscular fibres, apparently identical with the cloudy swelling which occurs in infectious diseases. Dr. Coplin therefore thinks that this change is only part of an alteration of the general musculature due to toxæmia. But there were also changes probably due to extension of the inflammation from the adjacent serosa. The muscle fibres were dissociated and separated by a granular acidophilic deposit (indicating œdema). Groups of fibres showed hyaline degeneration. What appeared to be a more advanced stage of the changes just described consisted in leucocytic infiltration of the muscle and necrosis of the fibre. In this stage pneumococci and other organisms were found in the muscles. Fibrin was abundantly present. Specimens showing a further stage and the ultimate result in cases of recovery could not be obtained. Evidence of suppuration was usually absent but no doubt small necrotic areas infiltrated with leucocytes were really microscopic abscesses. The general pathology of myositis points to the inference that with subsidence of the infection the necrotic muscular tissue would be removed by phagocytes and that some fibrosis would result. The following case is an example. A man, aged 22 years, had left-sided pleurisy of six years' duration which terminated in empyema. On June 9th, 1903, three quarts of pus were removed by aspiration. A week later two inches

[1] Maryland Medical Journal, September, 1902.

of the seventh rib were excised and the cavity was drained. The patient improved and left the hospital. He returned on Oct. 26th with the heart still displaced to the right and the left chest deficient in resonance and the respiratory sounds diminished in the upper half and absent in the lower. Professor Keen performed thoracic resection, removing the greatly thickened pleura with the chest wall from the third to the seventh rib inclusive. On Dec. 2nd there were signs of œdema of the lung and death occurred two days later. A necropsy was not obtained. Microscopic examination of sections of the soft parts removed showed in the majority only fibrous tissue most of which was in the early stages of formation though some of it was dense. There were also granulation tissue and muscle which had undergone considerable changes—atrophy, fatty degeneration, vacuolisation, and fragmentation. The clinical importance of such changes in the intercostal muscles is evident, for they may be a factor in the dyspnœa of diseases of the chest.

NORTH INDIA SCHOOL OF MEDICINE FOR NATIVE CHRISTIAN WOMEN.

WE have received from the secretary of the Medical Missionary Association, a pamphlet[1] descriptive of the North India School of Medicine for Native Christian Women at Ludhiana in the Punjab. The school was started nine years ago and at present has 35 students in training—19 as hospital assistants, six as dispensers, and ten as nurses; there are also ten midwives. In connexion with the school there are a dispensary and a hospital of 70 beds where everything is done to satisfy the ceremonial requirements of high-caste patients. As no man is allowed inside the hospital five small zenana or purdah homes of three rooms each have been built with access to the street so that the patients may see their husbands or male relatives without disturbing other purdah women who must never be seen by strange men. The school is governed by a committee in India which has upon it representatives of several different societies; there are also auxiliary home committees in London, Edinburgh, and Dublin. One of its great needs is an increase in the teaching staff and as will be seen in our advertisement columns applications from qualified medical women are invited. The Government has granted 25,000 rupees for the completion of the hospital and dispensary buildings and the University of Lahore has promised to consider its affiliation as soon as certain requirements are fulfilled, one of which is that there shall be eight fully qualified practitioners (female) on the teaching staff.

ANTITYPHOID inoculation has been introduced into the German Army in view of the favourable results obtained by the application of Dr. A. E. Wright's method. The troops proceeding to South-West Africa in connexion with the military operations which are being conducted there have, we believe, been made the subject of treatment.

THE Revaccination Bill, 1904, has passed its second reading and the committee stage in the House of Lords. Lord Lansdowne, quoting from Dr. Bruce Low's recent report, pointed out that in the last 12 years there had been in Germany only 667 deaths from small-pox in a population of more than 56,000,000.

THE council of the Society of Arts has awarded the silver medal of the society to Dr. Robert Jones for a paper upon Physical and Mental Degeneration which was published in the journal of the society of March 4th.

[1] Published by Messrs. Morgan and Scott, 12, Paternoster-buildings, London, E.C.

THE King has been pleased to approve of the appointment of Mr. Otho Galgey, M.R.C.P. Irel. (colonial assistant surgeon), to be an official member of the Legislative Council of the Island of Saint Lucia.

Sir John Wolfe Barry will distribute the certificates and prizes at King's College, London, on Wednesday afternoon, July 6th, at 3 P.M.

H.R.H. the Prince of Wales has consented to become Patron of the Royal Meteorological Society.

THE LAST SCHOOL BOARD REPORT.

(*Concluded from p. 1815 of* THE LANCET *of June 25th, 1904.*)

WE now come to that portion of the report which treats of the measures adopted under the direction of the School Board for checking the dissemination of diphtheria. This section of the report is written by Dr. C. J. Thomas who has devoted much attention to work of this nature. According to his experience it appears that diphtheria does not tend to spread to any great extent in classes composed of children under the age of four or above the age of seven years. In babies' classes—i.e., amongst children at ages from three to four years—diphtheria has not been found to spread in the London board schools. It is among children between their fourth and seventh birthdays that the greatest danger of school-spread is to be feared. Dr. Thomas suggests the following interesting explanation of this peculiar age incidence. It is well known, he says, that the blood of adults and older children in this country contains an appreciable quantity of antitoxin. It is equally certain that infants have a relative immunity against the disease; children between four and seven years are therefore in the intermediate stage in which, while they have lost the protection acquired at birth from placental circulation, they have not yet acquired immunity by the self-production of antitoxin that is set up by sub-pathogenic doses of diphtheria bacilli.

In the earlier part of last year a laboratory was fitted up and work therein was commenced in June, the experience gained during 1902 and 1903—particularly with regard to the Gordon House Home and Ancona-road outbreaks—having shown that greater facility for bacteriological investigation was essential in order that diphtheria prevalence in schools should be adequately dealt with. The methods adopted at the laboratory are very instructive. They do not, however, readily admit of being summarised and in view of their importance we give the description in Dr. Thomas's own words: "The diphtheria returns from all districts were kept under continuous observation, and as soon as there was any suspicion of school influence, as shown by the attack-rate in any school department or class, a visit was made. The children in the affected classes were examined, and the attendance registers were carefully looked over. All children giving clinical signs of mild diphtheria—e.g., nasal discharge, enlarged cervical glands, undue pallor, ear discharge; children whose attendance record showed a suspicious absence; children whose history was in any way doubtful, e.g., coming from a recently infected house, having returned from hospital, or having recently appeared out of sorts—all such children were examined bacteriologically. This was carried out by transferring a portion of the mucus from the throat or nose by a platinum loop straight on to a sterile serum tube which was afterwards grown at 98° F. for 15 hours. The culture was then examined and any case showing Klebs-Löffler bacilli was immediately excluded from school by telegram, and notified to the local medical officer of health."

As compared with the usual method of "swabbing" with cotton wool the advantages of direct inoculation of serum tubes as now described are: first, that growths are obtained in a larger proportion of cases; secondly, that a more delicate manipulation is secured; thirdly, that the objection to a double transference of material is surmounted;

and lastly, that the expense and trouble of providing sterile swabs are avoided. For purposes of exclusion the tests relied on as conclusive were: (1) the morphological characters (in every case); and (2) the Neisser staining reaction. Other tests, such as (3) acid production; (4) virulence to guinea-pigs; or (5) "unpremeditated virulence experiments" are inadmissible, save for confirmatory results, owing to the time necessary for their application. As the children remain at school during the making of the test rapidity of action is obviously a necessity.

As a result of rigorously applying the foregoing method it is satisfactory to find that from August, 1903, to March, 1904, it was not necessary to close any class in a London board school on account of diphtheria and, further, that the spread of diphtheria in the schools of the Board has been arrested. From the fact that out of 758 cases examined only 7·6 per cent. showed diphtheria bacilli it is clear that the experience in London board schools does not confirm the statements sometimes made respecting the prevalence of diphtheria bacilli among the population. In this connexion Dr. Thomas quotes the experiments of Hewlett and Murray who, basing their conclusions on investigations of the throats of children admitted to the Victoria Hospital, argued that 15 per cent., or one in every seven of normal children in the general community, have diphtheria bacilli in their throats.

In London board schools, however, Dr. Thomas has found that only one in 13 children have diphtheria bacilli, even in affected classes where the children must be looked upon as possible "contacts"; amongst "non-contacts" the prevalence must be very much less. And here it is interesting to note the conditions at Gordon House Home. At this residential school a severe outbreak of diphtheria occurred in 1902 which terminated in December of that year. The throats of all the children were systematically swabbed and none of them were allowed to return to the home until they were free from bacilli. In December, 1903, a year after the ending of the outbreak, all the girls' throats were again swabbed with the result that only two were found to be harbouring diphtheria bacilli out of 64 present in the house, the proportion being 3·1 per cent. These bacilli were, moreover, attenuated and non-virulent to guinea-pigs.

A number of bacilli morphologically simulating the organisms of Klebs-Löffler are found in the tonsillar and nasal discharges of a large proportion of London children. These are styled pseudo-diphtheria bacilli and are altogether non-virulent. The biological position of the pseudo-diphtheria bacillus and its relation to diphtheria are not settled. It is regarded as probable that in many of the earlier recorded researches these bacilli were not differentiated and that consequently an exaggerated estimate of the frequency of the diphtheria bacillus has been made. Dr. Thomas tells us that out of 758 examinations the pseudo-diphtheria organism has been identified in 211 cases, or 28 per cent. of the whole. Owing to doubts respecting the relationship of this pseudo-bacillus to diphtheria all children found harbouring it were at first excluded but it soon became evident that if this practice were continued a large diminution of school attendance would follow. After a while, therefore, the exclusion of such children was discontinued and it was found that the presence of these organisms might safely be ignored. Nevertheless, we are assured that a certain relationship does exist between the two organisms and—what is of more importance—that where true diphtheria is most prevalent there are found in greater abundance the pseudo-diphtheria bacilli also. It is probable that the pseudo-organism is totally distinct from the true diphtheria bacillus but that it is a member of the same group, affected by the same conditions and spreading in a similar way from child to child. Its general presence therefore may be useful as indicating the directions in which diphtheria, if introduced, would be likely to spread. It further appears to be probable that the pseudo-bacillus is capable of causing mild sore-throat and in many instances children suffering from sore-throat during a diphtheria outbreak show in bacteriological tonsillar cultures no trace of the Klebs-Löffler bacillus but an almost pure culture of the pseudo-organism. Speaking of the mode in which diphtheria is spread through school attendance Dr. Thomas expresses the opinion that diphtheria is a personal disease and spreads to any serious extent only by personal contact. The common use of slates and of drinking cups may conceivably be a danger but his experience has shown that direct personal transmission is the chief cause and almost the only one to be considered practically. Nevertheless, in order to be on the safe side the use of slates has been discontinued by the London School Board.

Dr. Thomas divides the children who spread diphtheria into two groups: Group A, perfectly healthy children who have not had diphtheria but who have been in contact with a case of diphtheria or with a person harbouring diphtheria; such persons, although nevertheless free from the disease, are capable of acting as hosts to the diphtheria bacillus and of transmitting it to others. Such transmitters of the disease are termed "carriers." Group B, children actually suffering from the disease who go to school in an infective condition. This group consists: (1) of children with clinical signs of diphtheria but not ill enough to be kept at home; and (2) of children who have passed through a slight attack of diphtheria and return to school whilst still in an infectious condition. Group A is of the greatest importance, owing to the fact that "carriers" are the most difficult to detect and therefore the most likely to do mischief; they are also the most difficult to deal with after discovery. There is evidently need in London for greater facilities for bacteriological examination than those that at present exist. There can be no prospect of stamping out diphtheria until such facilities are everywhere available. "Contacts" with diphtheria are largely ignored and whilst still infective are permitted to mix with their schoolfellows and with other members of the community. With more frequent use of bacteriological diagnosis in cases presenting slight clinical symptoms and universal employment of the same methods in the case of "contacts" it should be possible in this country to obtain absolute control over diphtheria.

THE METROPOLITAN STREET AMBULANCE ASSOCIATION.

Two influential deputations were received by the police committee of the Corporation of the City of London on June 29th with reference to the ambulance question.

The Metropolitan Street Ambulance Association was represented by Mr. Reginald Harrison, the President, Mr. A. A. Bowlby, surgeon to St. Bartholomew's Hospital, Sir William Church, President of the Royal College of Physicians of London, Sir Dyce Duckworth, physician to St. Bartholomew's Hospital, Mr. Raymond Johnson, surgeon to University College Hospital, Surgeon-General A. H. Keogh, Mr. John Langton, surgeon to St. Bartholomew's Hospital, Sir Stephen Mackenzie, physician to the London Hospital, Mr. Charles Mansell Moullin, surgeon to the London Hospital, Sir E. Cooper Perry, superintendent at Guy's Hospital, Dr. H. D. Rolleston, physician to St. George's Hospital, Mr. Cuthbert S. Wallace, surgeon to St. Thomas's Hospital, Mr. C. H. Golding-Bird, surgeon to Guy's Hospital, Dr. A. W. James, honorary secretary, and the Hon. Dudley Leigh.

The deputation appointed by the central executive committee of the St. John Ambulance Association consisted of the following gentlemen: the Marquess of Breadalbane, Lieutenant-Colonel Sir Richard Temple, Surgeon-General Sir Joseph Fayrer, Surgeon-General Sir W. R. Hooper, Inspector-General B. Ninnis, and Colonel Sir Herbert C. Perrott.

Mr. HARRISON in his opening remarks said:—"We come as a deputation to-day from the Metropolitan Street Ambulance Association (a large body of medical practitioners resident in London) over which I have the honour to preside, to urge upon the Corporation of London the necessity for providing a more efficient ambulance service for the City. In furtherance of this object we have with us representatives from the three hospitals which receive the larger number of accidents occurring within the City of London—viz., St. Bartholomew's, Guy's, and the London Hospital. An independent deputation from the St. John Ambulance Association also accompanies us. In dealing with this object it must be remembered that of the large number of accidents and medical casualties which daily occur in the City many are in connexion with steam and electric machinery. The latter are frequently and increasingly the cause of what can only be described as the most frightful injuries and lacerations that can be conveyed

through the streets. Permit me to say that we are specially desirous upon this occasion to urge upon the members of the committee the necessity for providing with as little delay as possible a more rapid and efficient service by the addition of horse ambulances to the existing appliances. By these conveyances not only is prompt and skilled attendance brought to and applied on the spot where the accident occurs but, if necessary, as often happens in cases of serious hæmorrhage and wounds, whilst the patient is in course of transit to the hospital. There would, I anticipate, as in other places where horse ambulances have been used for some years, be no difficulty in efficiently and economically manning them by advanced students connected with the City hospitals which I have mentioned. I will not occupy your time further, but with your permission, Sir, will call upon our secretary, Dr. Arthur James, to make a few remarks or to furnish replies to any questions you may wish to put as supplementary to what I have said."

Dr. JAMES then said: "Medical men who come in contact with cases of accident or sudden illness either as they occur in the streets or as they arrive at hospitals are painfully aware of the fact that under present conditions not only do people die who might be saved but some who would not otherwise die lose their lives entirely through the faulty method of their removal, while many others have their sufferings and their injuries greatly aggravated from the same cause. This condition of things is all the more to be deplored because the remedies are so simple and are so thoroughly proved in every other well-organised city. It is sometimes said that the expense to the community of providing an efficient ambulance service in London would be too great, but it must be apparent that the cost of all this unnecessary loss of life and prolonged disablement and treatment is enormously in excess of what would be required to remedy it. 35 years ago all these points were thoroughly discussed in New York with the practical result that a well-organised horse ambulance was established. The advantages of that service were so obvious that almost every large city in America soon followed that example, and gradually since then most of the best regulated cities of the world have adopted similar methods. It is noteworthy that many of the cities that now have good horse ambulance services at first, from motives of economy, tried to manage with litters but these were soon found to be inadequate and unsatisfactory as is the case in London. The extensive experience of other large cities proves beyond question that for the successful working of an efficient ambulance service the following provisions are essential: 1. That the police should be kept properly trained in first-aid work. 2. That by means of telephones easily reached from the scene of any accident it should be possible to summon an ambulance adequately equipped and in charge of a skilled attendant. 3. That the ambulance should be stationed in a convenient place in touch with the hospitals, ready to start at very short notice and able to reach the scene of the accident accompanied by the attendant within a few minutes. 4. That the vehicle should be so constructed that the attendant can remain close to the patient and able to watch and to administer treatment if necessary during the entire journey to home or hospital."

Sir DYCE DUCKWORTH and Sir JOSEPH FAYRER both laid great stress on the loss of life and unnecessary suffering due to the absence of an efficient ambulance service in London, and said that they were quite ashamed of the chief City of the Empire in this respect.

Sir RICHARD TEMPLE, Inspector-General NINNIS, Sir WILLIAM CHURCH, Mr. BOWLBY, and Mr. GOLDING-BIRD endorsed all that had been said and strongly advocated the establishment of an efficient horse ambulance service.

The deputations were most favourably received and after a very satisfactory interview withdrew.

ASYLUM REPORTS.

Surrey County Asylum, Brookwood (Annual Report for 1903).—The average number of patients resident during the year was 1180, comprising 492 males and 688 females. The admissions during the year amounted to 453—viz., 228 males and 225 females. Of these 296 were first admissions. Mr. J. E. Barton, the medical superintendent, states in his report that the total number of cases admitted "exceeds the admissions in any previous year, with the exception of 1884, since the opening of the asylum. ..... Many possessed insane inheritance or suffered from organic brain disease. Many also were actively suicidal and had made attempts or threats [of suicide] prior to admission and the need of constant supervision and forethought in the treatment of these cases was a source of great anxiety." Two females admitted whilst pregnant were confined during the year, the children being in due course removed by their friends. The difficulty of prompt egress in case of fire from the upper dormitories of the old asylum buildings had long been a source of anxiety. This matter has at last been successfully dealt with. Eight external fire-escape staircases have been fixed, openings have been made where necessary between the dormitories, and internal doors have been made to open both ways and all external doors to open outwards. Other improvements have also been carried out with reference to the water-supply and the heating and warming arrangements of the place. The number of patients discharged as recovered during the year amounted to 95—viz., 46 males and 49 females, or 8 per cent. of the average number resident. The deaths during the year amounted to 111, or 9·4 per cent. as calculated on the same basis. Of the deaths, four were due to renal disease, five each to cardiac disease and epilepsy, six each to cerebral hæmorrhage and pneumonia, 13 each to organic brain disease and senile decay, 16 to pulmonary and other forms of tuberculosis, 21 to general paralysis of the insane, and the rest to other causes. The Commissioners in Lunacy state in their report that the asylum wards were in excellent order, that the condition of the dormitories and bedding was very satisfactory, that the patients were found neatly and suitably clad and in a satisfactory condition as regards personal tidiness, that the dinners served to the patients were good in quality and sufficient in quantity, and that the medical case-books were well and properly kept. The committee of management states in its report that the maintenance rate for patients has been fixed at 12*s.* weekly per head for the whole year, that the extension of the laundry and of the water-supply has been proceeded with, and that the building of an extension to the asylum has just been concluded in a very satisfactory manner, the final adjustment of accounts showing that the work had been executed for £107 12*s.* less than the amounts voted by the Surrey County Council.

Monmouth County Asylum, Abergavenny (Annual Report for 1903).—The average number of patients resident during the year was 950, comprising 485 males and 465 females. The admissions during the year amounted to 220—viz., 118 males and 102 females. Of these, 167 were first admissions. Dr. J. Glendinning, the medical superintendent, states in his report that a considerable proportion of the patients admitted were very much debilitated in health and bodily condition and bodily diseases and disorders were given as the cause of the mental disorder in 74 cases. Hereditary predisposition was traced in 43 cases and intemperance in drink in 13 cases. The number of patients discharged as recovered during the year amounted to 86—viz., 41 males and 45 females, or 9 per cent. of the average number resident. The deaths during the year amounted to 95, comprising 44 males and 51 females, or 10 per cent. as calculated on the same basis. Of the deaths three were due to epilepsy, four to pneumonia, five to cerebral hæmorrhage, seven to general paralysis of the insane, 13 each to cerebral softening and to pulmonary and other forms of tuberculosis, 24 to cardiac disease, and the rest to other causes. The deaths were all due to ordinary causes excepting in the case of two male patients; one, a private patient who was allowed out daily on parole, was accidentally killed by being knocked down by an express train while walking over a level crossing on the Great Western Railway, and the other committed suicide by hanging. "The great event of the year was the removal of 228 patients, belonging to the counties of Brecon and Radnor, to their new asylum at Talgarth ..... which was accomplished with but little trouble and without accident." The Commissioners in Lunacy state in their report that the patients appeared to be in good bodily condition and well cared for, that their dress and general appearance were satisfactory, that the dormitories were clean, comfortable, and well ventilated, and that the medical case-books were satisfactorily and well kept. They suggest certain slight improvements to secure a more efficient supply of water in case of fire than the inadequate supply which they witnessed at their visit. The committee of management states in its report that there is now vacant accommodation in the asylum for 76 patients—viz., 26 males and 50 females. Certain parts of the old building have been rebuilt and during the time of

rebuilding the patients were accommodated in temporary buildings. They have since been removed from the temporary buildings and accommodated in the asylum itself as the use of the temporary buildings for a longer period was not sanctioned by the Home Secretary.

Borough of Leicester Asylum, West Humberstone (Annual Report for 1903).—The average number of patients resident during the year was 783, comprising 327 males and 456 females. The admissions during the year amounted to 241—viz., 75 males and 166 females. Of these 219 were first admissions. Dr. J. E. Montague Finch, the medical superintendent, states in his report that "of the 806 patients remaining in the asylum at the end of the year 29 (13 males and 16 females) were deemed curable." As usual, many of the patients admitted were found to be in an extremely feeble state of bodily health "and the number of those permanently confined in bed continues to increase ..... most of them [being cases of] chronic ill-health and senile decay." Among the chief causes of insanity in the admissions intemperance in drink was ascertained to exist in 21 cases—viz., 18 males and three females, hereditary predisposition existed in 38 cases, and congenital mental defect was present in seven cases. Senile decay was the cause of mental failure in 16 cases. The number of cases discharged as recovered during the year amounted to 65—viz., 33 males and 32 females, or 8·3 per cent. of the average number resident. The deaths during the year amounted to 67—viz., 35 males and 32 females, or 8·5 per cent. as calculated on the same basis. Of the deaths two each were due to epilepsy and renal disease, three each to cerebral hæmorrhage and cancer, six to cardiac disease, eight each to pulmonary or other forms of tuberculosis and cerebral softening, 13 to general paralysis of the insane, and the rest to other causes. The general health of the inmates was good during the year and no inquest was held. Only one serious casualty occurred, that of a feeble epileptic female who broke her leg by falling in a fit. Two new greenhouses have been erected for the purpose of supplying the wards with additional plants and flowers. Steam ironing machinery and other labour-saving appliances have been added to the laundry. A pension scheme for officers and servants of the staff has been adopted. The scale of superannuation after 15 years of service is ½ths of the average amount of salary and emoluments of the officer or servant, with an additional sixtieth for each further year of completed service, the maximum amount not exceeding ⅘ths. The Commissioners in Lunacy state in their report that the day-rooms and dormitories of the asylum were found to be in excellent condition, that the electric lighting throughout the institution was nearly completed, that the condition of the patients seemed good and that they appeared to be well cared for, and that the medical case-books and registers were carefully and well kept. They recommend that extra exits and increased facilities for escape in case of fire should be provided for the male infirmary dormitory, with the exception of which they regard the existing arrangements as generally very satisfactory. The committee of management states in its report that nearly all the officers and servants of the institution have entered into the necessary agreement for giving effect to the pension scheme, that during the year additional gardens and walks have been laid out for the use of the patients requiring walking exercise, and that the asylum buildings externally and internally are in a satisfactory state of repair.

Royal Asylum of Montrose (Annual Report for 1903).—The average number of patients resident during the year was 677, comprising 313 males and 364 females. The admissions during the year amounted to 145—viz., 58 males and 87 females. Of these, 113 were first admissions. Dr. John G. Havelock, the medical superintendent, states in his report that of the total number resident about 130 were private patients. "The total number of private patients resident at the end of the year shows an increase of ten and the number of rate-supported patients a decrease of nine." Seven persons were admitted as voluntary boarders. Many of the patients on admission were found to be in bad bodily health, six had general paralysis of the insane, six others had organic brain disease, seven were affected with pulmonary tuberculosis nine were in an advanced stage of senile decay, 31 had various affections of the heart and vascular organs, and a few were suicidal, epileptic, or affected with asthma and bronchitis. The number of patients discharged as recovered during the year amounted to 69, or 10·2 per cent. of the average number resident. The deaths during the year amounted to 52—viz., 24 males and 28 females, or 7·6 per cent. as calculated on the same basis. Of the deaths two were due to epilepsy, four each to pulmonary tuberculosis and cerebral hæmorrhage, five to organic cerebral disease (excluding hæmorrhage), nine to general paralysis of the insane, ten to cardio-vascular disease, 11 to senile decay, and the rest to other causes. The only accidents of a serious nature which occurred during the year were a simple fracture of the femur sustained by a fall, and the death of a female patient who had escaped from the buildings at dusk and made her way to a neighbouring railway-line where she was killed by a passing train. Alcoholic intemperance as a cause of insanity in the admissions was traceable only in 8 per cent. of cases, "but," adds Dr. Havelock, "the absence of a complete history of the cases makes it impossible to assign an exact causation, ... This is specially worthy of mention, as in some of the asylums in Scotland drawing patients from the large towns, excessive drinking has been certified with causing about 50 per cent. of the admissions. ..... The natives of the shires of Forfar and Kincardine are a hard-headed section of the population ..... and many can consume enormous quantities of alcohol over long periods of years without showing ..... actual insanity." The Commissioners in Lunacy state in their report that the wards in the main building, the hospital block, and the male villa were maintained in excellent order, that the day-rooms and dormitories were bright and cheerful, that the former were well supplied with books, plants, and objects of interest, that the bedding was scrupulously clean and in good condition, that the lavatory and sanitary arrangements were of the newest and best pattern, that the general condition of the patients was highly satisfactory and indicative of capable and conscientious care, and that the medical records and case-books were well and intelligently kept. The private patients in Carnegie House were "surrounded with every comfort, its accommodation being throughout of exceptional excellence."

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8509 births and 3867 deaths were registered during the week ending June 25th. The annual rate of mortality in these towns, which had been 14·6, 14·2, and 13·8 per 1000 in the three preceding weeks, further fell last week to 13·2 per 1000. In London the death-rate was 12·8 per 1000, while it averaged 13·4 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 4·7 in Willesden, 7·0 in King's Norton, 7·1 in Aston Manor, 7·4 in Wolverhampton, 7·8 in Wallasey, 8·0 in East Ham and in Stockton-on-Tees, 8·3 in Hornsey, and 8·6 in Walsall and in Smethwick; while the highest rates were 17·8 in Liverpool and in Warrington, 18·3 in Stockport and in Oldham, 18·6 in West Bromwich, 18·9 in Middlesbrough, 20·0 in Sunderland, 22·0 in Bootle, and 22·3 in Birkenhead. The 3867 deaths in these towns last week included 444 which were referred to the principal infectious diseases, against 495, 492, and 487 in the three preceding weeks; of these 444 deaths, 180 resulted from measles, 84 from whooping-cough, 75 from diarrhœa, 48 from diphtheria, 27 from scarlet fever, 26 from "fever" (principally enteric), and four from small-pox. In Willesden, Norwich, Devonport, Wolverhampton, Aston Manor, York, Swansea, and in nine other smaller towns no death from any of the principal infectious diseases was registered last week, whilst the highest death-rates from these diseases were recorded in Brighton, Birkenhead, Liverpool, St. Helens, Warrington, Oldham, Burnley, and Hull. The greatest proportional mortality from measles occurred in Brighton, Birkenhead, Wallasey, Liverpool, Bootle, St. Helens, Manchester, Oldham, Burnley, Halifax, and Hull; from scarlet fever in Warrington; and from whooping cough in Warrington, Blackburn, Huddersfield, Middlesbrough, and Gateshead. The mortality from diphtheria, from "fever," and from diarrhœa showed no marked excess in any of the large towns. Of the four fatal cases of small-pox registered in these towns last week one belonged to London, one to Walthamstow, one to Stockport, and one to Newcastle-on-Tyne. The number of small-pox patients under treatment in the Metropolitan Asylums Hospitals, which had been 96, 95, and 80 at the end of the three preceding weeks, had risen again to 83 at the end of last week; 16 new cases were admitted during the week,

against ten, 21, and seven in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital on Saturday last, June 25th, was 1629, against 1673, 1647, and 1630 on the three preceding Saturdays; 199 new cases were admitted during last week, against 207, 193, and 206 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 181, 157, and 142 in the three preceding weeks, declined last week to 141, and were nine below the number in the corresponding period of last year. The causes of 29, or 0·8 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Leicester, Salford, Bradford, Leeds, Newcastle-on-Tyne, and in 51 other smaller towns; the largest proportions of uncertified deaths were registered in Reading, Liverpool, Huddersfield, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 18·1, 16·2, and 17·0 per 1000 in the three preceding weeks, declined again to 15·9 per 1000 during the week ending June 25th, but was 2·7 per 1000 in excess of the mean-rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·3 in Leith and 14·6 in Aberdeen, to 18·0 in Paisley and in Greenock and 21·1 in Dundee. The 526 deaths in these towns included 27 which were referred to whooping-cough, 22 to diarrhœa, 12 to measles, six to diphtheria, four to "fever," two to scarlet fever, and one to small-pox. In all, 74 deaths resulted from these principal infectious diseases last week, against 64, 73, and 66 in the three preceding weeks. These 74 deaths were equal to an annual rate of 2·2 per 1000, which was 0·7 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 21 in each of the two preceding weeks, increased last week to 27, of which 13 occurred in Glasgow, five in Edinburgh, three in Dundee, two in Aberdeen, and two in Paisley. The deaths from diarrhœa, which had been 14, 24, and 20 in the three preceding weeks, rose again to 22 last week, and included nine in Glasgow, seven in Dundee, two in Aberdeen, and two in Greenock. The fatal cases of measles, which had been 16 and 14 in the two preceding weeks, further declined last week to 12, of which five were registered in Glasgow and four in Edinburgh. The deaths from diphtheria, which had been four in each of the two preceding weeks, increased to six last week, and included two in Glasgow and two in Edinburgh. The fatal cases of "fever," which had been two in each of the two preceding weeks, rose last week to four, of which two occurred in Dundee. The death from small-pox belonged to Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 87, 68, and 93 in the three preceding weeks, declined again last week to 64 and were 28 below the number in the corresponding period of last year. The causes of 14, or nearly 3 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 19·7, 18·3, and 21·7 per 1000 in the three preceding weeks, declined again to 19·5 per 1000 during the week ending June 25th. During the past four weeks the death-rate has averaged 19·8 per 1000, the rates during the same period being 13·0 in London and 15·6 in Edinburgh. The 142 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 16 from the number in the preceding week and included three which were referred to the principal infectious diseases, against 16, four, and six in the three preceding weeks; of these, two resulted from diphtheria and one from measles, but not any from small-pox, scarlet fever, whooping-cough, "fever," or diarrhœa. These three deaths were equal to an annual rate of 0·4 per 1000, the death-rates last week from the principal infectious diseases being 1·4 in London and 1·9 in Edinburgh. The 142 deaths in Dublin last week included 18 among children under one year of age and 38 among persons aged 60 years and upwards; the deaths of infants showed a considerable decline, while those of elderly persons were slightly in excess of the number in the preceding week. Five inquest cases and three deaths from violence were registered; and 50, or more than a third, of the deaths occurred in institutions. The causes of three, or more than 2 per cent., of the deaths registered in Dublin last week were not certified.

METROPOLITAN HOSPITAL SUNDAY FUND.

THE following are some additional principal amounts received at the Mansion House on behalf of the Hospital Sunday Fund. The total of the sums paid in up to Wednesday evening amounted to £38,000, to which, of course, will be added Mr. Herring's generous contribution of 5*s.* in the £.

	£	s.	d.
St. Peter's, Vere-street	644	0	0
Holy Trinity, Sloane-street	460	0	0
St. Paul's, Knightsbridge	382	0	0
St. Mary's, Bryanston-square	372	0	0
St. Columba's, Pont-street	206	0	0
Holy Trinity, Tulse-hill	201	0	0
St. Stephen's, Gloucester-road	148	0	0
St. Barnabas', Kensington	148	0	0
Christ Church, Albany-street	137	0	0
St. Silas', Nunhead	124	0	0
Christ Church, Gipsy-hill	118	0	0
St. James's, Kidbrooke	110	0	0
Hampstead Parish Church	108	0	0
St. Mark's, North Audley-street	105	0	0
St. James's, Paddington	100	0	0
Regent's-square Presbyterian Church	100	0	0
St. John the Evangelist, Penge	93	0	0
Headley Parish Church	92	0	0
Victoria-park Christian Evidence Association	90	0	0
Stamford Hill Congregational Church	90	0	0
St. James's, Clapham Park	84	0	0
Holy Trinity, St. Marylebone	83	0	0
Trinity Church, Hampstead	74	0	0
Lee Parish Church	73	0	0
St. Matthew's, Denmark Hill	70	0	0
St. Luke's, Chelsea	66	0	0
St. John's, Notting Hill	55	0	0
St. Saviour's, Paddington	54	0	0
St. James's, Hatcham	53	0	0
Heath-street Baptist Church, Hampstead	52	0	0
Streatham Hill Congregational Church	51	0	0
St. Saviour's, Brixton-hill	50	0	0
St. Mary's, Balham	48	0	0
St. Luke's, Nutford-place	48	0	0
St. Olave's, Woodberry Down	47	0	0
Christ Church, Beckenham	46	0	0
St. Anne's, Soho	43	0	0
Orpington Churches	41	0	0
St. John's, Bromley	39	0	0
Grosvenor Church, South Audley-street	38	0	0
Chapel Royal, Hampton Court	35	0	0
All Saints', Clapham-park	35	0	0
Ealing Parish Church	35	0	0
St. Michael's, Stockwell	35	0	0
Trinity Presbyterian Church, Bromley	34	0	0
All Saints', West Dulwich	34	0	0
New Court Chapel, Tollington-park	33	0	0
St. Agnes', Kennington	32	0	0
St. Mary's, West Kensington	32	0	0
St. James's, Spanish-place	30	0	0
St. Mark's, Notting Hill	30	0	0
Islington Parish Church	30	0	0
Christ Church, Wanstead	30	0	0
St. Barnabas', Clapham-common	29	0	0
Berkeley Chapel, Mayfair	26	0	0
Bushey Parish Church	25	0	0
Regent's Park Baptist Chapel	23	0	0
Plumstead Parish Church	23	0	0
St. Andrew's, Hornsey	23	0	0
St. Anne's, Highgate Rise	23	0	0
Christ Church, Westminster	23	0	0
All Saints', Upper Norwood	23	0	0

THE SERVICES.

ROYAL NAVAL VOLUNTEER RESERVE.

THE undermentioned gentleman has been appointed surgeon—viz.: James John Marsh (dated June 27th, 1904).

IMPERIAL YEOMANRY.

Lovat's Scouts: Alexander George Lovett-Campbell to be Surgeon-Lieutenant (dated May 28th, 1904).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 4th Durham: Surgeon-Lieutenant J. S. Milne to be Surgeon-Captain (dated June 25th, 1904).

Royal Engineers (Volunteers): East London (Tower

Hamlets): Surgeon-Lieutenant F. S. Edwards to be Surgeon-Captain (dated June 25th, 1904).

Rifle: 2nd Volunteer Battalion the Northumberland Fusiliers: Surgeon-Lieutenant F. N. Grinling is borne as Supernumerary whilst commanding the Tyne Volunteer Infantry Brigade Bearer Company (dated June 25th, 1904). 2nd Volunteer Battalion the Lancashire Fusiliers: Lieutenant J. A. C. Roy resigns his commission and is appointed Surgeon-Lieutenant (dated June 25th, 1904). 3rd Volunteer Battalion the Welsh Regiment: Evan James Trevor Jones, to be Surgeon-Lieutenant (dated June 25th, 1904). 13th Middlesex (Queen's Westminster): Surgeon-Lieutenant J. S. Hudson to be Surgeon-Captain (dated June 25th, 1904). 2nd Volunteer Battalion the York and Lancaster Regiment: Surgeon-Lieutenant V. Graham to be Surgeon-Captain (dated June 25th, 1904).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

Argyll and Sutherland Bearer Company: William Cochrane Murray, to be Lieutenant (dated June 25th, 1904).

THE HOUSES OF PARLIAMENT AND WAR OFFICE RECONSTRUCTION.

The recent debate in the House of Lords on War Office Reconstruction led to some important statements on the part of Lord Lansdowne and Lord Donoughmore which will serve to indicate in a general way the view entertained by the Government in respect to the report of Lord Esher's Committee on that subject. Whilst agreeing in many ways with its aim and general principles it is clear from what their lordships said on behalf of the Government that Ministers do not by any means hold themselves bound by everything that appears in that report and on some points even emphatically dissent from it. But the discussion in the House of Peers, however interesting in itself, does not touch the scheme of army reform which has still to be drafted and laid before Parliament. There was a lively debate on Army Reform in the House of Commons on Tuesday last, started by Mr. Beckett. Some important and instructive information was elicited from Mr. Arnold-Forster and from the Prime Minister. The country, no doubt, is keenly interested in the production of the long-expected scheme of army reform, but it cannot be denied that the problem to be solved is difficult and complex and so long as it is honestly tackled the nation will not grudge any reasonable delay in making public the scheme. Mr. Arnold-Forster does not despair of putting a scheme before the country in a fairly complete form or of getting an army suited to the requirements of the Empire at a reduced rate of army expenditure.

THE BIRTHDAY HONOURS.

The names of members of the medical profession who are included in the list of birthday honours will be found in another part of the present issue of THE LANCET. The list includes the following officers connected with the services: Deputy Surgeon-General J. H. Thornton, C.B., I.M.S. (retired), and Surgeon-General E. Townsend, C.B., C.M.G., A.M.S., who have been promoted to Knight Commanderships of the Bath, and Surgeon T. Ligertwood (retired pay), late physician and surgeon to the Royal Hospital, Chelsea, Surgeon-General W. J. Fawcett, A.M.S., and Hon. Colonel J. E. Squire, R.A.M.C. (Volunteers), London Companies, who receive Companionships of the same Order.

THE WAR IN THE FAR EAST.

Since the fiercely fought battle of Telissu with such disastrous results to the Russian forces Admiral Togo's naval victory at Port Arthur has to be recorded. Without entering into the details connected with the attempt of the Russian fleet to escape it may be said that the attempt failed. The circumstances were very similar to those which took place in February last. The Japanese torpedo flotilla was launched at night against the Russian fleet, the Japanese battle-ships keeping outside the mine area. The dire results as regards the Russian fleet are well known. The attempted sortie from Port Arthur ended in disaster and Admiral Togo's fleet purchased a victory at a relatively insignificant cost. Nor can it be said that the progress of the events on the land side has been more favourable to the Russians. The strategical outlook from a Russian standpoint is not a promising one and it is not surprising to learn that fears are entertained in Russia that General Kuropatkin is not ready at the present time to cope with the advancing enemy. Whether he will seek by a rapid northward march to escape from the Japanese fast closing in upon him or will concentrate his forces and make a big fight of it somewhere about Tashichao now remains to be seen. If the Japanese have captured three passes General Kuropatkin, unable to retreat northward, may be compelled to fight or to surrender. Be all this as it may, there must soon come an end to speculation for the season is fast approaching when there must be a temporary suspension of all active hostilities. This fact must be well known to the Japanese and we may consequently be sure that they are now only waiting until the disposition of their forces is such as to enable them to strike with what they consider likely to be to the best advantage to themselves. We learn but little of the medical history of the campaign and what we do is rather conflicting. We shall probably know next to nothing of a trustworthy kind on this head until the war is over. The troops of the first Japanese army are reported to be in good health and spirits. Native reports from Niu-chwang state that the Russians are losing many horses from glanders. On June 24th there were 800 wounded at the Russian camp three miles east of Niu-chwang. A few surgeons of the Red Cross Society had arrived there but many more are needed. Local medical men are offering their assistance which the Russians decline. At the battle of Telissu the behaviour of the medical men and ambulance attendants who remained the whole time under fire with the Russian troops is described as having been admirable. The losses on the part of the Russians on that occasion were very large and turn out to have been much in excess of what was originally reported. General Oku reports: "Russian corpses buried by us near Telissu up to evening, June 17th, amounted to 1516. Russian corpses still forthcoming and believed to increase considerably. Natives say Russians during engagement carried back their killed and wounded by railway, while later when about taking flight, they buried or cremated corpses near Huasungkou." The hardships of the retreat of the unhappy Russian soldiers following the battle of Telissu were terrible owing to the fatigue, want of food, exposure, and heavy rains after their two days of hard fighting. It is a notable feature of this war that the loss of Russian officers under fire has, as compared with men, been so disproportionately large.

The *Kharbin Viestnik* observes that near Tchita on the river Peschanoi the building of a large hospital to accommodate 5000 patients has been begun. It will consist of 25 buildings each to take in 200 beds exclusive of other buildings for the staff and stores.

The *Sviet* gives the following as the financial state of the Russian Red Cross Society on June 1st. The total in hand was £737,087. For special account of the Russo-Japanese war it had received £356,222 and paid out £298,925, balance £57,296 less a fraction. Besides this there is a reserve capital for the pressure of war time of £227,951. The May receipts were £117,341 and the payments were £82,756.

Correspondence.

"Audi alteram partem."

THE INFLUENCE OF THE UNRECOGNISED CASE IN THE SPREAD OF COMMUNICABLE DISEASE.

To the Editors of THE LANCET.

SIRS,—There is a statement and there is a deduction in your otherwise admirable leading article under the above heading in THE LANCET of June 11th, p. 1666, to which exception will be taken by those who have given special attention to the "isolation" question. As to the first it will be felt that the comparison of such with ignorant and unreasoning antivaccinationists can hardly hold in view of the fact that all the objections to the aggregation system have been raised on purely scientific grounds—unless, indeed, the word "science" has been modernised out of its etymological signification. Usefulness is a tangible thing and if "these useful institutions" are rendering any service to the community how is it that no data are forthcoming in support of such a claim? Not only has no man ever yet attempted to justify the existence of the isolation hospital

on scientific lines but nobody has dared to excuse it. And good reason why; for, on the one hand, we have the inexorable facts of secondary infection, post-scarlatinal diphtheria, return cases, and endemic scarlet fever, with numerous formidable aggregation et ceteras; on the other—what? a guess, a surmise—a guess with a memory so short that it forgot the teachings of experience, from the old Edinburgh fever house downwards—a surmise so crude that it was able to ignore the findings of bacteriology. So the spectacle presented to the world is that of the defeat of the objects and aims of sanitary betterment by a system designed as a preventive measure.

Turning to the part played in the spread of disease by the unrecognised case I submit, Sirs, with deep respect, that a very different lesson may be read into your article from the one you seek to inculcate. Were the world not already weary of registrations, notifications, "isolations" State regulation, and compulsion, would the harassing and costly espionage suggested in your article minimise the evil? I aver that it would not. Diphtheritic bacilli flourish in the throats of healthy people. Numbers of cases of scarlet fever remain unrecognised until the peeling stage and after, and my experience as public vaccinator has shown me that small-pox may run its course without rash and without any marked malaise. And where would the bacteriologist come in in any of the three diseases? In diphtheria where the presence of the organism does not necessarily predicate the existence of the disease nor its absence negative it? Scarlet fever and small-pox? in one of which the *materies morbi* is undiscovered and in the other only guessed at. We claim, Sirs, that the unrecognised case is but one of the many rifts in the lute which there is no mending. More frightening would mean more concealment and notwithstanding the tact and gentleness with which the sanitary officials have discharged their onerous duties it is concealment that has kept the epidemic of small-pox going in this city since January last. The present somewhat alarming recrudescence is entirely due to a concealed case.

The concluding paragraph of your leading article makes one wonder why much of the rest was written. "A careful study of the conditions which have led almost to the extinction of typhus fever and to the decline of tuberculosis in this country may perhaps help us to make greater resistance to other infectious diseases." They are wise words and I commend them to the consideration of those public health enthusiasts who see no brighter and better fate in store for their fellows than incarceration in a limbo which would make life not worth living. For these great happenings we are in debt neither to spying, collective "isolation," nor restrictive laws, but to works of sanitation and general sanitary betterment which left law-abiding individuals free from State interference and worrying espionage.

I am, Sirs, yours faithfully,

Nottingham, June 24th, 1904. EDWARD DEAN MARRIOTT.

APPLIANCES FOR PREVENTION OF MINERS' PHTHISIS.

To the Editors of THE LANCET.

SIRS,—With reference to annotations in THE LANCET *re* prevention of miners' phthisis I should like to call your attention to the following facts. Any remedy proposed must not interfere with the efficiency of the boring machine; there must be no substituting of an inferior machine for a better one. Now the water drill is much inferior to the air drill in efficiency and it is not reasonable to expect the managers of mines or even the miners on contract work to use a drill which will give them less returns of ore and consequently less pay. Through the courtesy of the Climax rock drill manufacturers I have had the opportunity of seeing Britten's appliance and also the Climax atomiser and will describe the superiority of the latter. From my observations when seeing Britten's device at work during the drilling of a dry hole I came to the conclusion that although the dust arising therefrom was partially wetted it was not wholly so, with the consequence that the partially wetted dust appeared to be blown about in the immediate neighbourhood of the hole to such an extent that the partly damped particles settled very readily on surrounding objects, including, of course, the men themselves.

It seems to me that an apparatus of this sort employs too much compressed air and not sufficient water, with the result that the water used does not sufficiently damp the dust to drop it in the form of mud or sludge and that the apparatus employing, as before stated, a rather large quantity of air is inclined to blow the partly wetted particles of dust all over the immediate vicinity of the rock drill, and as it does not drop immediately to the ground will be liable to be inhaled by the men employed on the rock-drilling machines.

Now, the device of the Climax rock drill (admitted by the Royal Commission of inquiry as to trade in South Africa to be the only serious English competitor) has many advantages over Britten's. The volume of air used is much smaller, the quantity of water sprayed against the orifice of the dry hole is much larger, so that the particles of dust are thoroughly wetted and drop in practically a vertical line from the mouth of the hole being drilled. This apparatus of the Climax Rock Drill Co. of Carn Brea can be regulated to employ water in variable quantities. It can spray water at the rate of one gallon in five minutes or one gallon in 80 minutes. It also has the unique advantage of being able to employ the same water many times over and is entirely controlled by the air tap of the rock drill, so that both the rock drill and the spray are operated by the one rock drill man, obviating the employment of a second man to hold the water jet, as in the old methods. The machine itself cannot be operated without the spray being also operated, as it is attached to the air tap of the drill and the miner cannot possibly work one without the other.—I am, Sirs, yours faithfully,

JOHN HERBERT TONKING,
Surgeon, Miners' Hospital.

Camborne, Cornwall, June 25th, 1904.

HYDROGEN PEROXIDE AS A GERMICIDE IN TYPHOID FEVER.

To the Editors of THE LANCET.

SIRS,—In making a number of experiments lately on the influence of antiseptics on digestants and infective microbes in conjunction with Dr. J. L. Dimond, pathologist to the Liverpool Royal Southern Hospital, we were particularly struck with the effect of hydrogen peroxide solution. In comparatively small quantities—20 minims in one ounce of water—this caused complete sterility of the bacillus typhosus. Many years ago Brieger demonstrated the small degree of virulence of the toxin of this bacillus when cultivated on pure peptones and ever since reading his results I have supported my hospital patients—I think with great advantage—on these nutrients. If we possess in hydrogen peroxide, as I am persuaded we do, a harmless but efficacious germicide in typhoid fever we can attack the *causa morbi* in a double direction. As I do not remember to have seen in the general advocacy made by the late Sir B. W. Richardson and others of the germicidal effects of the drug a notice of its influence on the particular bacillus in question I venture to commend its trial to medical practitioners.

I am, Sirs, yours faithfully,

Liverpool, June 22nd, 1904. WILLIAM CARTER.

A CHRONIC NEUROSIS CHARACTERISED BY FREQUENT PAROXYSMS OF PAIN, SWELLING, AND HÆMORRHAGE IN VARIOUS PARTS OF THE BODY.

To the Editors of THE LANCET.

SIRS,—An original article by Dr. T. K. Monro and Dr. A. N. McGregor dealing with this subject appeared in THE LANCET of April 16th, p. 1039, just to hand. A condition similar in many respects and which at the time was a cause for much speculation occurred in a patient, a single man, aged 26 years. He was under my treatment for pulmonary tuberculosis, both apices showing evidence of disease. A week after he was first seen swelling and severe pain occurred in the left knee. The pain was very intense down the front of the leg to the foot. Four distinct swellings appeared, reddish blue in colour, non-pitting and elastic on pressure, but extremely painful, two on the outer side of the leg, one over the tibia, and one on the calf. On the thigh of the same side two larger swellings approaching the size of an orange appeared a day later. These were not so painful. The knee was red and warm and fluid was present in the joint. Fomentations were applied and the limb was elevated on a splint and the swellings subsided in a week, leaving a brownish staining which entirely disappeared in

three or four weeks, though pain still was present on movement. The knee also became reduced in size though some fluid was still present.

In three months he had another attack with rise of temperature to 101° F., accelerated pulse, and vomiting. On this occasion both legs and arms were affected, the left knee being more swollen than the right. Swellings were noted at irregular intervals. They were at first white in colour like the surrounding parts but quickly became dark red. Pain was severe and only slightly relieved by fomentations and sedative applications. One swelling, which was fluctuant, situated on the tibia below the knee on the inner side of the leg, I incised and found a quantity of gelatinous matter of a reddish white tinge. There was little bleeding and the wound healed perfectly after one dressing. Under the microscope only leucocytes and fibrin could be seen with a few red blood corpuscles. No subsequent swelling occurred in that region. At the end of a week the temperature fell to normal and the swellings subsided and the patient's condition improved though he had considerable difficulty in flexing the knees and ankles. He was sent into the country for six months and on his return to Melbourne he again came under notice, having spat up some dark blood on the previous night. An examination of the lungs showed much improvement. He had gained weight and felt well with the exception of severe pain in the region of the left sciatic nerve. The right knee on this occasion was swollen and contained fluid but was not painful. He was sent to the sanatorium but after two months was sent to town for operation on the right knee. There were redness and swelling with fluctuation two and a half inches below the joint and severe pain down the leg. This disappeared after a few days, so operation was considered unnecessary. He was then able to resume his ordinary occupation but had to use sticks to enable him to move about, both limbs being stiff and painful.

Three months later he was a spectator on a stand and missing his footing he fell down steps a distance of 12 or 13 feet. Beyond a slight shock he experienced no inconvenience and next day was in some remarkable, almost incredible, way able to walk and to move as well as ever he could. He has improved in condition and is now engaged in his business, the lung disease having apparently become quiescent.

At the time of these attacks I was inclined to the belief that they were due to angio-neurotic œdema or purpura rheumatica. There was no hæmophilia nor evidence of purpura hæmorrhagica, and urticaria could not be considered as there were no wheals or itching. Although there was no hæmorrhage from the bowel or hæmoglobinuria as described by Wende the symptoms seemed to point more to œdema angio-neuroticum than purpura rheumatica as there was no constitutional disturbance or petechial painful crops as generally found in the latter disease. The condition and its termination (it is 12 months since the accident) are very interesting.

I am, Sirs, yours faithfully,

Melbourne, Australia, May 24th, 1904. ROBT. H. STRONG.

SHOULD MEDICAL MEN BE ALLOWED TO DISPENSE THEIR PRESCRIPTIONS OR NOT?

To the Editors of THE LANCET.

SIRS,—THE LANCET of June 18th contains a letter inquiring whether medical men should be allowed to dispense their prescriptions. Your correspondent is evidently of opinion that apart from the question of prohibition, which has for the time ceased to be a question, it is preferable that medical men should dispense. He quotes two instances which he takes to prove the inefficiency of certain druggists in this part of their business. Once he sent for nitrite of amyl (in capsules). The druggist had none. We are not informed whether he was without the nitrite itself. He had "something that would do as well." There are, of course, other drugs which are used for the same purpose, such as trinitrin. Perhaps it is not unworthy of note that your correspondent himself appears for the moment to have exhausted his own supply. On another occasion he prescribed nepenthe but with a like result. Many druggists keep this preparation; others, as well as probably the majority of practitioners, do not, for nepenthe is not to be found in any British Pharmacopœia. It is simply a proprietary article, one of a thousand stock medicines by means of which, aided not a little by the dispensing system in medical practice, manufacturers of drugs are gradually capturing both the practitioner and the retail druggist. I do not consider, Sirs, that your correspondent's cases are sufficient to justify his sweeping condemnation of the latter. At the same time I admit that many drug-shops are not so fully stocked with all the requisites of treatment as they should be. The reason is clear: so long as medical men continue to dispense demands upon the druggist will be comparatively few. Let them cease dispensing and they will allow an expansion of trade which will insure that the druggist maintains a supply adequate to the needs of his customers. The prices quoted by your correspondent must be extreme in any place. In this part of London 1*s.* is about the usual charge for dispensing a prescription. I think there can be very little doubt that the educated druggist of to-day is as a rule what he certainly ought to be—the fittest person to carry out that work of dispensing for which he has been carefully and expressly instructed.

I am, Sirs, yours faithfully,

Highbury, London, N., June 27th, 1904. B. G. MORISON.

THE INSURANCE OF MEDICAL MEN AGAINST THE DANGERS OF THEIR PROFESSION.

To the Editors of THE LANCET.

SIRS,—Dr. J. Eyre's unfortunate experience as described in THE LANCET of June 25th, p. 1811, entirely bears out my own experience as regards the accident policies issued by Scottish companies. On four occasions, and only four, I have had to certify for accidents incurred by holders of Scottish policies and each time the claim has been disputed, and if allowed at all only paid after a good deal of difficulty. One case in particular I remember when a Scottish office absolutely refused to allow a "total disablement" claim which was paid without demur by an English company. Nothing would induce me to take out a Scottish accident policy for myself and I always advise anyone whom I know to hold one to drop it and take a policy in a well-known English company instead. I do not remember that I have ever had a claim disallowed in an English office.

I am, Sirs, yours faithfully,

Plymouth, June 25th, 1904. C. E. RUSSEL RENDLE.

THE NOMENCLATURE OF THE SIGMOID FLEXURE.

To the Editors of THE LANCET.

SIRS,—I notice that in the last edition of Sir Frederick Treves's "Manual of Operative Surgery," vol. ii., p. 291, the author and his colleague, Mr. Jonathan Hutchinson, jun., have perpetuated an error into which Sir Frederick Treves fell when writing his "Anatomy of the Intestinal Canal and Peritoneum." On p. 61 of that work Sir Frederick Treves suggested that the form of the sigmoid flexure was rather that of the Greek capital letter Omega with which we are all familiar, and that the name of this coil of bowel might with advantage be correspondingly altered.

Permit me to point out that the sigmoid flexure takes its name from a form of the Greek letter Sigma which resembles the capital Omega laid on its side, or our modern capital letter C with a little hook added below. This form of Sigma will be found in all the old Greek books in which contractions are used in the type and it has disappeared from modern ones; whence Sir Frederick Treves's error. The editors of the various editions of Quain's Anatomy take care to give the correct explanation in the index to that work (for example, ninth edition, vol. i., p. 740). The sigmoid notch of the lower jaw and the sigmoid cavities of the ulna and lower end of the radius are consequently correctly named.

With regard to the sigmoid flexure this matter is far from having a merely academic interest and that is my reason for this communication. Sir Frederick Treves is quite right in pointing out what is the actual shape of this bend of the bowel because arguments for and against the use of O'Beirne's tube which I have read in medical literature have evidently been affected by the conception formed in the mind of the arguer of the exact form of this part. In his work on "Intestinal Obstruction" Sir Frederick Treves shows himself quite sufficiently alive to the dangers of what he

terms "the long tube" as a means of diagnosis (second edition, p. 319). He rightly describes the part as a *loop* provided with an extensive mesocolon, in some examples amounting to from 16 to 20 inches in length and capable of touching the gall-bladder, the cæcum, or the umbilicus. The importance in everyday practice of keeping in the mind a correct conception of this part of the intestine is obvious and I think the practitioner will be greatly aided if he remembers the sigmoid cavities of the radius and ulna and why they are so called.

I am, Sirs, yours faithfully,

J. B. NIAS, M.D. Oxon.

Rosary-gardens, S.W., June 22nd, 1904.

THE ROYAL ORTHOPÆDIC HOSPITAL.

To the Editors of THE LANCET.

SIRS,—I am instructed by the committee of the Royal Orthopædic Hospital to inform you, with reference to the circular issued by the secretary of the City Orthopædic Hospital dated Jan. 14th, 1904, that the statement contained in that circular to the effect that the Royal Orthopædic Hospital has ceased to exist is entirely untrue. As you have been informed, the Royal Orthopædic Hospital is amalgamated with the National Orthopædic Hospital under the sanction and with the strong approval of King Edward's Hospital Fund for London.

Arrangements have been made for the erection of a new building in which the work of the combined institution will be carried on under one management. In the meantime the work of the Royal Orthopædic Hospital is being carried on in temporary premises at 55, Bolsover-street, W., where both in-patients and out-patients continue to be received. So far as my committee can learn, not one patient of the Royal Orthopædic Hospital has gone to the City Orthopædic Hospital and the suggestion that the amalgamation has in any way increased the work of the City Orthopædic Hospital is without foundation.—I am, Sirs, yours faithfully,

TATE S. MANSFORD, Secretary.

Royal Orthopædic Hospital, 55, Bolsover-street, W., June 27th, 1904.

THE GOVERNMENT OF INDIA AND THE ROYAL ARMY MEDICAL CORPS.

To the Editors of THE LANCET.

SIRS,—Paragraph 429 of the Regulations for the Allowances of the Army, 1903, reads as follows:—"Married officers when necessarily employed on duty with troops on board ship will be entitled to free accommodation for their wives and children, if permitted to accompany them." With regard to India, to which place a very large percentage of the officers of the Royal Army Medical Corps go, this regulation is got over in the following manner. About last January a letter was received by the Director-General of the Army Medical Service from the War Office directing that in future only bachelor officers were to be detailed for duty with troops for India. This must have been done at the instance of the Indian Government. A married officer of the Royal Army Medical Corps with three children thus loses at least £150 over each voyage to or from India, as shown by the following table:—

	Per A. and O. steamboat. £		Per hired transport. £ s. d.
Self	52	... ...	*nil.*
Wife	52	... ... 20 days' messing at 5*s.* 6*d.*	5 10 0
Child 8 years old	26	... ... ,, ,,	4*s.* 0*d.* 4 0 0
,, 5 ,,	26	... ... ,, ,,	2*s.* 6*d.* 2 10 0
,, 4 ,,	26	... ... ,, ,,	2*s.* 6*d.* 2 10 0
Nurse (2nd class)	32	... ... ,, ,,	2*s.* 6*d.* 2 10 0
Total ...	£214	Total ...	£17 0 0

Deducting from the £214 the £17 for messing on board the transport and the £47 10*s.* received from the Government the above-mentioned officer loses quite £150, taking into account the lesser cost of extras on board the transport. As a medical officer will in ordinary course perform three journeys to and from India in seven years he would lose at least £450 in this short period. Moreover, when he reaches India he probably has at least one expensive move in front of him in his new command.

Veterinary officers, in accordance with paragraph 426 (*b*) of the Allowance Regulations are always entitled to free passage for their wives and families whether travelling with or without troops. As may be seen, this invidious distinction is a cruel hardship on the medical officer. Regimental officers, as a rule, travel with troops and accordingly are allowed free passages for their families.

The Government of India has recently (May 7th, 1904) ruled that an officer of the Royal Army Medical Corps transferred to a station carrying a higher rate of charge allowance must be viewed as transferred to a more lucrative appointment for the purpose of paragraph 103 (2) of the Army Regulations of India, vol. x. According to this ruling a medical officer landing at Bombay and ordered to Quetta as a specialist at Rs. 50 a month may be put to the expense of Rs. 1000 over the journey of his family and very likely would regret the day he became a specialist. The same thing happens in the case of an officer transferred, say, to an appointment with an increase of charge pay of Rs. 60 a month, the expense of the journey possibly amounting to much more than the total sum received over the larger rate of charge pay. If, say, an officer moves from Darjeeling to Dinapore to assume charge of a station hospital with an extra Rs. 60 per month charge pay he is never likely to be able to recoup himself for the great expense of the journey of his family. If these moves occurred at the officer's own wish one might possibly be able to understand it. In fact, the senior or specialist officer will often prefer to remain in the lower-paid appointment, but unfortunately will not always be allowed to.

The Government of India recently raised the pay of certain of the ranks of the Royal Army Medical Corps after great pressure but by the above new rules it will more than recoup itself for its great generosity.

I am, Sirs, yours faithfully,

QUATUOR MARIA.

THE ROYAL HOSPITAL FOR INCURABLES AND THE DISPUTED LEGACY.

To the Editors of THE LANCET.

SIRS,—Your issue of Dec. 5th, 1903, p. 1611, contains a paragraph headed "Inaccurately Worded Legacies." In this paragraph particulars are given of a then recent decision by a judge of first instance in the Chancery Division to the effect that the British Home and Hospital for Incurables at Streatham was entitled to receive a legacy expressed by a testatrix to be given to "The Royal Home for Incurables, Streatham," and which had then already been paid to the Royal Hospital for Incurables at Putney by the testatrix's executors.

The board of the Royal Hospital for Incurables desire us to acquaint your readers with the following facts. First, that the decision in question was in the month of March reversed by an unanimous decision of the Court of Appeal, and the institution which they represent was held to be entitled to the legacy; and, secondly, that besides the evidence of the donor's intention, legally admissible, there existed in the executors' control additional evidence, not legally admissible, but leaving no moral doubt as to the institution which it was the testatrix's intention to benefit. It has recently come to the knowledge of the board of the Royal Hospital for Incurables that the paragraph from your paper has been reprinted and circulated. As this states the facts only up to a certain point the board think it desirable that the additional facts above detailed should be before your readers and hence we would ask you to permit the insertion of this letter in your next issue.

We are, Sirs, yours faithfully,

FARRER AND CO.

Lincoln's Inn-fields, London, W.C., June 27th, 1904.

FIFTY YEARS OF PAROCHIAL MEDICAL SERVICE.—Mr. Robert Girvan, L.R.C.S. Edin., who was appointed to his present position as medical officer to the Parish council of Maybole, N.B., on June 7th, 1854, has been congratulated by the chairman on behalf of the council on the occasion of his jubilee, the chairman also expressing the appreciation of the council of the thorough and conscientious manner in which he had always performed his duties. Mr. Girvan served for 35 years in the 2nd Volunteer Battalion Royal Scots Fusiliers and retired with the rank of Surgeon-Lieutenant-Colonel, being awarded the volunteer decoration. It is entirely owing to Mr. Girvan's retiring disposition that no public ceremony has taken place to mark his 50 years of parochial service.

THE FOLKESTONE PUBLIC HEALTH CONGRESS AND THE SANDGATE SCANDAL.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(Concluded from p. 1754 of THE LANCET *of June 18th, 1904.)*

SANATORIUMS IN SWITZERLAND, DENMARK, AND HOLLAND.—RESTRICTIVE LEGISLATION IN NORWAY.—THE CAUSES OF THE PROGRESS IN ENGLAND AND GERMANY.

CONSIDERING the world-wide renown acquired by such places as Davos, Switzerland may be placed in the forefront when dealing with the question of sanatoriums for the treatment of pulmonary tuberculosis. It does not seem, however, as if any very remarkable improvement had been effected. The statistics are given in averages for five years and according to these figures the deaths from tuberculosis of the lungs and of the larynx amounted annually to 22·15 per 10,000 inhabitants from 1878–82, to 22·77 during the next five years, and to 22·23 and 22·28 during the following two groups of five years. It may therefore be said that from 1878 to 1897 the fluctuations showed no definite sign of improvement. It is only during the four years from 1898 to 1901 that there is a distinct change for the better, as the annual average for these four years is 19·42 per 10,000 inhabitants. It is, however, very difficult to connect this slight improvement with the sanatoriums as there were many other influential causes at work. The figures also are very scattered and there does not seem to be any comprehensive summary in existence. This is but natural when it is remembered that the Swiss Confederation is subdivided into 22 different constitutions, and further, that nearly all the work has been done by private enterprise. Dr. F. Schmid, Director of the Federal Sanitary Bureau at Berne, does, however, give a list of the popular sanatoriums existing at the beginning of 1903 and their cost. At Heiligenschwendi, 1140 metres above the sea, there has been since 1895 a sanatorium of 108 beds which cost £201 per bed, and a pavilion holding 40 beds has since been added. At Davos the "in der Stille" sanatorium, founded in 1896 by the Basle Society of Public Utility, is 1660 metres above the sea, has 86 beds, and cost £263 per bed. In the canton of Zürich the Wald sanatorium is 907 metres above the sea and since 1898 has 90 beds which cost £243 each. At Braunwald, canton Glarus, 1180 metres above the sea, there is a sanatorium of 30 beds which was opened in 1897 and cost £255 per bed. The only instance where the cost was less than £200 is that of a small sanatorium of 22 beds at Malvilliers, in the canton of Neuchâtel, 860 metres above the sea, and in this exceptional case the cost per bed is set down at £181. There are 100 beds in the sanatorium of Leysin and 65 at Clairmont-sur-Sierre. The cantons of Lucerne, Zug, Fribourg, Soleure, Bâle-Campagne, Schaffhausen, Grisons, St. Gall, Aargau, and Thurgau have no popular sanatoriums, but some £40,000 have been collected so as to build sanatoriums. Some of these cantons, pending the time when they will have sanatoriums of their own, have made contracts with the cantons that are more fortunate and pay for, and retain, some beds for their own patients.

By the side of the provision thus made for the Swiss who suffer from tuberculosis there are a large number of popular sanatoriums founded, peopled, and supported by foreign nations. Thus, there are at Davos a Dutch sanatorium with 50 beds, a German sanatorium with 80 beds, and the English invalids' home with 14 beds. There are also a large number of private sanatoriums for the wealthy of all countries at Davos, Arosa, Leysin, and Montana which contain altogether about 1500 beds. Dr. Schmid pointed out in his report on this subject that all the popular sanatoriums of Switzerland have been created by private initiative. The Society of Public Utility has done most in this direction. The communes, the trade corporations, and charitable persons have subscribed funds or guaranteed annual subventions. The State has facilitated loans or given grants in aid. The current working expenses are covered first by the payments made by the patients themselves or by the benefit societies to which they belong, or else by the Assistance Publique which is the nearest approach to our Poor-law administration. Thus, out of 271 patients treated in 1901 at the Zürich sanatorium of Wald 178 paid for their own board, 40 were paid for by the benefit societies to which they belonged, 33 were recipients of private charity, and only 20 were sent by the Assistance Publique. As for the result of such treatment figures are given only in regard to 2954 cases treated from 1899 to 1901 and divided into three stages or categories according to their condition on admission. Among the patients in the first stage 96 per cent. improved, 3 per cent. remained stationary, and 1 per cent. died. Of the second stage 84 improved, 12 did not, and four died per 100 patients. Out of the patients in the third stage only 58·2 improved, 39·5 remained as they were, and 2·3 per cent. died. Those who were restored to their full working capacity amounted to 85·2 per cent. among the patients in the first stage, 49·5 for the second stage, and 10·9 for the third stage.

To go to another small country, Dr. Knud Faber of the University of Copenhagen has urged that tuberculosis follows much the same course as leprosy and necessitates similar precautions. The departmental medical officer of Färöe, Dr. Boeg, was able to obtain the history of 342 patients suffering from tuberculosis who lived simple isolated lives in the archipelago and whom he had watched for 20 years. No less than 77 per cent. of these cases seemed due to infection as the patients had frequently associated with others suffering from the disease; in 66 per cent. they lived in the same house; in 40 per cent. one of the parents and in 47 per cent. a brother or a sister suffered from tuberculosis. The necessity of special hospitals is generally recognised in Denmark and the State has given grants in aid of the benefit societies that seek to build such hospitals or sanatoriums. The law of April 12th, 1892, sanctions the giving by the State of a subsidy of 2*s.* 6*d.* per day per patient to benefit societies which place their funds under the control of the State. There are now 1228 such funds or societies with a membership of close upon 400,000 persons. In the ordinary hospitals of Copenhagen it was found that 20 per cent. of the patients were suffering from tuberculosis of the lungs and this led to the opening, at a cost of 700,000 crowns, of a sanatorium in the forest of Bosera containing 144 beds. In the island of Bornholm and elsewhere there are sanatoriums for scrofulous and other diseases and there are private sanatoriums, one of 170 beds, outside, but near to, Copenhagen for the treatment of tuberculosis. So much has been done that in the capital of Denmark the mortality from this disease has been reduced from 3·1 to 1·8 per 1000 inhabitants.

It is, however, in Norway that the most stringent measures have been taken implying absolute belief in the infectious nature of phthisis. Nevertheless the legislation bearing on this question is of too recent a date to enable any opinion to be formed as to the result; also its object is to prevent the spread of the disease rather than to cure the patients. The whole question is governed by a special law which bears the date May 8th, 1900. This law renders the notification of cases of tuberculosis obligatory whenever the sputum is likely to propagate the disease. Then prophylactic measures, varying according to the nature of the case, are imposed. Thus disinfection is obligatory in case of death or of removal. No boarder can be taken to lodge with a family where there is a case of tuberculosis. No person suffering from this disease is allowed to prepare, to sell, or to have anything to do with articles of food; nor may such engage themselves as nurses or domestics in private families. Finally, any patient who has not the means of nursing himself properly at home or who is neglectful and does not show himself willing to carry out the prophylactic instructions given to him can be seized and conveyed by force to a hospital.

In Holland the State aids those who seek to establish sanatoriums. In Belgium it has been seen that the authorities governing the province of Liège have made a notable effort at Borgoumont, while both France and Italy have only reached the stage of discussing whether or not the State should take the initiative and build sanatoriums for this purpose. Yet the Assistance Publique of Paris has established a sanatorium at Angicourt and when M. Millerand was Minister of the Posts and Telegraphs he sought to create another sanatorium for the postal servants. Still, such schemes find very strong opponents, Dr. A. Robin having placed himself at the head of the opposition. This eminent physician maintains that a certain number of patients are admitted into sanatoriums who are not really infected with tuberculosis and this falsifies the results.

These he considers are not good enough to warrant the outlay. In England, where the best results are to be shown, even the mere preliminary stage of discussing whether the State should build sanatoriums has not yet been reached. In any case the question has not entered the domain of practical politics. Nevertheless, as Dr. Arthur Newsholme pointed out in his report to the Brussels International Congress of Hygiene, Dr. R. Koch in his speech to the British Congress on Tuberculosis said: "The only country that possesses a considerable number of special hospitals for the treatment of tuberculosis is England, and without doubt the reduction of tuberculosis in England, which is greater than in any other country, is due in a large measure to this circumstance."

It is not necessary to point out that, on the contrary, the number of hospitals in England which are reserved especially for the treatment of tuberculosis is so small that they cannot have had a perceptible influence on the death-rate. The error, as Dr. Newsholme suggests, was doubtless caused by counting as sanatoriums ordinary hospitals, and especially the workhouse infirmaries. It is, indeed, very probable that the latter have been of great use in withdrawing tuberculous patients from poor and overcrowded districts where they would have spread the disease. Judging from his experience at Brighton it appears to Dr. Newsholme that the action of the Poor-law has been the means of withdrawing from the general population 18 per cent. of the cases of tuberculosis, and this during the most dangerous period of the disease. But then what would be the use of such withdrawals if these cases are to be dumped down and allowed to mix freely with another population, as is actually the case at Sandgate? The inmates of the workhouses of England and Wales vary in number from 5·8 to 7·7 per 1000 of the population and Dr. Milson Rhodes has estimated that one-eleventh of the total pauperism of the country is connected with phthisis. Therefore it is quite probable that the workhouse infirmaries have materially contributed to prevent the spread of tuberculosis in this country. But this has only been effected in regard to paupers and the class from which pauperism is in the main recruited. Nor do the workhouse infirmaries offer the prospect of cure or amelioration that would be found at a sanatorium and consequently the Poor-law guardians of the Liverpool union have determined to build a sanatorium. This example will probably be followed by other boards of guardians. In the meanwhile the majority of the guardians of the poor have sought to escape the trouble and responsibility of dealing with the question by allowing tuberculous patients to remain in the ordinary workhouse infirmaries. Fortunately it is only a very few among the Poor-law guardians who have allowed themselves to be influenced by the blandishments of the late J. J. Jones of Sandgate and have sent their patients to his so-called homes. Still, though the number is small as compared with the cases in need of special treatment throughout the country it represents an enormous crowd when it is considered that Sandgate has only 1995 inhabitants. What would the Norwegian legislators say to such wholesale and promiscuous mixing of patients with the general public? At Brighton and Manchester some unoccupied pavilions of the infectious fever hospitals have been used for the treatment and isolation of cases of tuberculosis; and under Section 131 of the Public Health Act the Local Government Board has authorised the town of Sheffield to build a sanatorium for tuberculosis, while some local sanitary authorities and boards of guardians have helped to defray the cost of the Dr. Paget Tomlinson Sanatorium in Westmorland. All these are, however, mere matters of detail affecting at best but a few hundred persons and only serve to indicate that one of these days something may be attempted on a sufficiently large scale to count in the vital statistics of the country. When compared with the German Empire it may be said that nothing has been done in England and not very much in other countries, so far, at least, as popular sanatoriums are concerned.

Dr. J. F. J. Sykes, medical officer of health of St. Pancras, set forth at Brussels the difference in the results attained in England and Germany in a very telling and graphic manner. He pointed out that in England the mortality from pulmonary tuberculosis had decreased, more especially among women, for they had profited by the better domestic sanitation introduced by our Public Health Acts. The special measures taken in Germany against tuberculosis have caused a rapid reduction of the mortality from phthisis among both sexes. This reduction followed quickly and in a marked manner upon the social legislation which was its cause. In England the reduction was greater still but more gradual and it followed upon the general sanitary measures adopted. The mortality among the men in England decreased less rapidly than among the women because greater attention is devoted to domestic sanitation than to the sanitation of the shop, the workshop, the factory, or the mill. In Germany, on the contrary, it is in regard to men that the greatest improvement has been effected because greater attention has been devoted to industrial hygiene. It is not the sanatoriums but the compulsory insurance; it is not the remedies attempted but the removal of the causes, the debilitating causes, that has accomplished the greatest good. In Germany the fact that the workers are entitled to pensions when ill has educated all concerned to an understanding of the economic advantage of good sanitation in factory and workshop. Special remedies and measures are all very well in their way but the main governing factor in the prevalence of tuberculosis is the general condition of the people. M. Siegfried, the deputy for Havre, has pointed out that in that very insalubrious town the mortality from tuberculosis is 60 per 10,000 inhabitants, that it is 80 per 10,000 in the Albanais district, and that in 60 model artisans' dwellings there has been no case whatever. *The Journal of the Statistical Society*, vol. viii., part 2, p. 254, gives the most conclusive calculations from which at first sight it would seem evident that the cost of wheat was the dominating factor. The statistics are given in groups of five years from 1838 to 1900. The average for this entire period is set down at 100 both in regard to the price of wheat and in regard to the number of deaths from pulmonary tuberculosis. The worst period was the first, from 1838 to 1842. Then the price of wheat was 141 and the deaths from phthisis were 172. From 1851 to 1855 the comparative figures are—wheat 121 and phthisis 126; in 1856–60, wheat 116 and phthisis 115; from 1861–65, wheat 103 and phthisis 112. Now we get to a figure which does not precisely maintain the theory, for the average price of wheat from 1866–70 somewhat increased, the comparative figure being 119, while the prevalence of phthisis was still further reduced to 108. During the next five years wheat remained at the same price—that is, still 19 above the average of 100, but now phthisis fell two below the average of 100, for it is set down at 98. It never reached the average again. From 1876 to 1880 wheat was 103 and phthisis 91. Then during the next four sets of five years, from 1881 to 1900, wheat is set down at 87, 67, 61, and 62, and the deaths from phthisis at 81, 72, 65, and 59.

In spite of the very startling nature of these figures it is obvious that the price of wheat is only a contributing cause. For instance, after 1866 the prevalence of phthisis continued to decrease though the price of wheat somewhat increased. But then it will be remembered that 1866 was the year of the last great cholera epidemic that occurred in England and this lead to the adoption of many measures of sanitation and the abolition of innumerable nuisances. So it can also be said, and said very truthfully, that cholera is a good preventive of tuberculosis, for it undoubtedly does cause much alarm and this fear facilitates the adoption of schemes and laws for improved sanitation which otherwise would have remained indefinitely in abeyance. Indeed, it is widely admitted that sanitation in all its many aspects is the best safeguard against phthisis and this is why the death-rate from this, as from so many other diseases, is lower in England than on the continent. But there still remains much room for improvement, especially in the crowded great industrial centres. From these large towns especially the temptation to send the patient away to some isolated country sanatorium is natural, and certainly if the patient does not benefit the town will. It is this very natural feeling that has formed the basis of the speculation started at Sandgate, which has been described and denounced in full. It is for the Public Health Congress, now about to meet on the spot, to take up the matter and to bring all its influence to bear. The facts related above should amply suffice to provide material for a discussion both in regard to sanatoriums in general and to the private speculation in so-called sanatoriums started at Sandgate. The description given of what has been done on the continent is enough to make anyone ashamed of what has been allowed at Sandgate. It is surely time energetic measures should be taken to put an end to such a scandal. A demand might at least be brought forward to the effect that those who make a trade of collecting together and catering for persons suffering from pulmonary tuberculosis should be classified as carrying on an unwholesome industry. Consequently, they should, like

soap-boilers and guano manufacturers, be placed under certain restrictions so that they should not become a nuisance and a danger to the general public and should be made to carry on their business at a certain distance from inhabited houses. The grievance that has arisen at Sandgate is unique. Nothing similar has ever been heard of before; therefore the Congress about to meet at Folkestone will have an exceptional opportunity of doing something original and quite different from the ordinary procedure of such gatherings. It is to be hoped that the Congress will not miss this excellent occasion of rendering a practical service to the cause of public health.

*** We have received a letter from Mr. P. Harold Jones denying that a dying patient has been at any time removed from Farleigh House and stating that "the number of beds in Farleigh House and Lymington House are not 49 but 32." The number of beds would seem to have been altered since the inspection of the homes by our Special Commissioner, to whom the late Mr. J. J. Jones supplied full particulars. Mr. Harold Jones is quite right in believing that our articles are not "actuated by any personal spite but solely by public motives," and no good purpose would be served by the publication of his letter. Our readers will see by an annotation published on another page that the suggested discussion of the matter by the Congress of the Royal Institute of Public Health at Folkestone has been adopted and we can only reiterate our Special Commissioner's hope that such a discussion will have tangible results in regard to the public health.—ED. L.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

A Water Grievance in Bombay City.—The Continued High Mortality from Plague throughout India.

CERTAIN parts of Bombay city periodically suffer from a bad water-supply. Of the three lakes as sources for the requirements of the city the "Vehur" and "Tausa" are generally good but the smaller "Tulsi," which largely supplies the European quarter of Malabar Hill, seems to be annually subject to contamination. Lately the water has been so complained about that even a bath in it is said to be unpleasant and the stench given off while watering a garden is described as unbearable. When the level of the lake gets low it is said that liquid filth is carried off by the main. The filter beds are not ready and the project for connecting the mains with the other supplies has not been commenced.

The mortality from plague throughout India is improving but for the week ending May 28th there were 20,484 deaths. The Punjab recorded 18,086, as against 24,853 for the previous seven days; Bombay Presidency 798, as against 1086; United Provinces 652, as against 1069; Bengal 200, as against 215; Rajputana 166, as against 195; Kashmir 73, as against 74; Bombay city 129, as against 208; Calcutta 90, as against 134; and Karachi 62, as against 77. Since the above figures were issued the disease has further declined in Calcutta and in Bombay city.

I have drawn attention at different times to the absence of figures for Poona amongst the weekly published returns. It appears that this city has been somewhat severely attacked, over 3000 deaths having occurred since last September. Although this mortality is not so great as in previous outbreaks it compares unfavourably with other places, 1 in 40 of the population having fallen a victim to plague. From 1896 to the present time Poona has probably lost a larger proportion of its inhabitants than any other city.

June 10th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Medical Benevolent Society.

THE annual meeting of this society has recently been held, Mr. M. A. Messiter, the President, being in the chair. Dr. Edward Malins was appointed President, Dr. A. S. Underhill (West Bromwich) President-elect, and Mr. W. Flewitt (Birmingham) and Mr. R. Latimer W. Greene (Stratford-on-Avon) Vice-Presidents, all for the ensuing year. The report shows that the invested funds now amount to £15,688 4*s.* 6*d.* 18 annuitants were on the books at the commencement of the year. One died during the year and five new annuitants were added to the list. The annual value of the grants ranged from £20 to £40 and the sum expended in this way was £755. The directors regretted that owing to the large number of annuitants they were unable to send them any donation at Christmas, as has been the case during the last few years. The total number of benefit members of the society at the end of the year was 411.

Dental Hospital.

A special appeal has now been issued to the public for the funds requisite for the provision of a very much needed new building for the Dental Hospital. The existing institution is the only one of its kind in the Midlands, there being no others nearer than London, Manchester, and Liverpool, and receives patients from a very large area. It is therefore only reasonable to hope that subscriptions may be rapidly forthcoming, seeing that the amount asked for is a very moderate sum, £8500 for building and £1500 for equipment. When the hospital was removed to its present position in the centre of the city and close to the site for the new building the number of patients received during the year was 5515. This was in 1882, and in 1902 the number was about double—viz., 11,112. A very large amount of conservative work is done as will be seen by the fact that in 1902 no less than 3046 teeth were saved by stopping, fixing crowns, &c. I am glad to see that the first list of subscriptions, which is appended to the appeal, amounts to about £3500 and I sincerely hope that a most deserving institution will soon obtain the funds required for its proper housing.

Open-air Treatment of Pulmonary Tuberculosis.

The board of guardians of the Aston union has been considering the advisability of providing some accommodation for treatment of this kind and has been inquiring into the success of the experiment which has already been made in this direction by the Birmingham board. The result of its inquiries has not been very encouraging. It appears that the Birmingham board has erected an open-air building of corrugated iron, lath, and plaster capable of accommodating six patients. This only cost £500, but even that modest expenditure has scarcely been justified by the results. It appears that the patients for whom the shelter was designed will not have anything to do with it save as a last resort and when their cases are so advanced as to render the success of the treatment very doubtful. And when they do enter the shelter they soon weary of the rigorous treatment and leave before they have had time to receive any real benefit. The shelter seldom contains the modest number of six for which it was designed. The result of these inquiries will probably be that the Aston board will refrain from undertaking any expenditure in this direction.

Health of Coventry.

The report of Dr. E. N. Snell, medical officer of health, shows a low rate of infantile mortality during 1903, the figure being 114 per 1000 births. The average rate for the past ten years has been 152. Only once previously was a lower figure recorded and that was in 1902 when there were 107 per 1000 births. The decline in numbers was due to the comparatively small prevalence of epidemic diarrhœa and the increase on the previous year was caused by deaths from measles and whooping-cough. The zymotic death-rate was 2·06 per 1000, the average for the previous ten years having been 1·9. The death-rate for scarlet fever, enteric fever, whooping-cough, and diarrhœa was below that for the rest of the country but the death-rate from measles and diphtheria, and especially from the former, was greatly in excess. The very extensive epidemic of measles with its heavy toll of 57 deaths was mainly instrumental in raising the zymotic death-rate for the year above that for the country generally. With regard to small-pox, the report states that it is now 30 years and more since the city was visited with so extensive an epidemic. In 1871, 166 deaths were due to it and in the following year there were 57 deaths. Since those years only two deaths were registered as due to this cause—namely, one in 1881 and one in 1894. 71 cases of the disease were notified and isolated during the past year and in the early part of May the epidemic threatened to assume alarming proportions. Dr. Snell points out that no epidemic

of this disease need ever be considered as alarming if people would take the natural precaution of being revaccinated but in view of the neglect of such precaution an epidemic may easily become alarming when it is considered that not merely the life and death of citizens are at stake but also the prosperity of the city which might be depressed for a number of years as the result of a serious epidemic. Dr. Snell gives a number of details of the cases which occurred and thus shows that the infection was introduced afresh on several distinct occasions, and then through the wilful or negligent refusal to take advantage of the preventive means of vaccination amongst those who were exposed to the direct risk of infection the disease went on its way through entire families or amongst neighbours who came in contact with one another as intimately as relatives would do.

North Staffordshire Small-pox Hospital.

At a recent meeting of the board of this institution, held at Hanley, Dr. C. H. Phillips, the medical officer, reported that 47 cases had been admitted to the hospital during the first quarter of the year, including 15 from Newcastle-under-Lyme and 29 from Leek. There had been 21 patients discharged, two had died, and 24 remained under treatment. Seven other patients were announced from Leek. He strongly advocated the provision of an administrative block, as the staff was in danger through having to occupy bedrooms in the wards continuously. The board considered modified plans for the provision of permanent buildings at the hospital and ultimately adopted the original plans with slight alterations, the estimated cost of the buildings being £5900.

Margarine Prosecution.

The stipendiary magistrate for the Potteries had recently before him at Fenton a number of cases in which traders were charged with offences under the Sale of Food and Drugs and the Margarine Acts. John Richard Midgley of Leeds was summoned for selling as butter an article which was actually margarine containing only 3½ per cent. of butter and also with dealing with margarine wholesale without having the package in which it was inclosed branded. He was further charged with selling as Cheddar cheese an article which was really margarine cheese and also with selling margarine cheese in an open package which was not properly branded with the name of the article. After a lengthy hearing the stipendiary said that he was only sorry that he could not send the defendant to gaol. A more deliberate fraud he never had evidence of. The obtaining of money by this means was the worst and meanest kind of false pretence. It affected the poorest people and often ruined the retailer. He could not send the offender to prison and therefore he fined him the full penalty of £20 and costs in each of the six cases—£141 in all. Other cases arising out of this one were tried but as it appeared that the defendants had been more or less deceived by Midgley they were let off either with lighter fines or without fines at all.

General Hospital.

At the meeting of the committee held on June 24th Dr. T. Sydney Short was elected to the honorary physiciancy rendered vacant by the resignation of Dr. E. Rickards, to which I alluded in my last letter. As Dr. Short has held the position of assistant physician for a number of years a vacancy now arises in that post. As this has been fully anticipated two candidates are already in the field—viz., Dr. S. Herbert Perry who is one of the casualty physicians to the hospital, and Dr. A. Stanley Barnes who is pathologist to the Queen's Hospital. Both of these gentlemen are past students of the Birmingham School and are well known in the city.

June 28th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The University of Manchester.

IT was announced on June 27th that the Royal Assent had been given to the Victoria University of Manchester Act, 1904. By this measure the Owens College becomes incorporated in the University and now ceases to exist "as a separate corporation." All the property (real and personal) and all the rights, powers, and privileges of the College are invested in the University "and applied to the objects and purposes for which the University is incorporated." The arms of the College are adopted by the University but the buildings now existing will continue to be known by the old name of "the Owens College," while the professors and other members of the teaching staff will hold "as nearly as is practicable the same offices and places" in the University as they have held in the College. The rights of the College as to the appointment or nomination of members of governing bodies of educational, charitable, or other institutions are transferred to the Council of the University, and any such rights of the Senate of the College pass over to the Senate of the University; and all bequests, gifts, or trusts in favour of the College are to have effect as if the University were named and not the College. The Duke of Devonshire now becomes the President of the University of Manchester and is empowered to preside at meetings and to confer degrees in the absence of the Chancellor (Earl Spencer).

The New Royal Infirmary.

A meeting of the board of management of the Manchester Royal Infirmary was held yesterday under the chairmanship of Mr. W. Cobbett. It appears that the building committee has examined the plans for the Stanley-grove building with a view to some modification and the architects have made certain suggestions to the committee which have been approved and embodied in a report. This report has been approved by the board and will be considered by the medical board. The changes suggested have not yet been made public but they are intended to reduce the cost without diminishing the accommodation of the new infirmary or affecting its efficiency. The Stanley-grove site is to be cleared within four months.

Dangers of Electricity.

As long as it is under control we all welcome the powerful agent that science has made available by putting electricity into harness. But the conditions necessary for its safe use are so delicate and therefore so easily disturbed that the greatest possible care will always have to be taken if accidents are to be avoided. On June 25th an illustration of this occurred at the Newland collieries, Normanton. Three men were working with an electric cutter "when an electric coil fused and an explosion occurred." They were all seriously burned and removed to the Clayton Hospital, Wakefield, in a critical condition. One would think that the electrocutions from "live rails" that we read of from time to time might be, and therefore ought to be, prevented by some mode of protection and that these rails ought not to be left open to catch trespassers who, even if they trespass, will scarcely be thought worthy of death. Then, too, there are very many people who live in dread, not altogether foolish, from the increasing dangers of the streets. They fear the network of death-dealing wires hanging over their heads like the sword of Damocles, to say nothing of the electric cars themselves which, as a rule, certainly keep to their own tracks. It is perhaps not easy to see how all these dangers are to be avoided but it is a matter to which men of science might well turn their attention with some earnestness.

Cheshire Hospital Scheme.

On June 24th at a meeting of the Mid-Cheshire joint hospital committee it was stated that in order to avoid delay in the erection of the joint hospital the Local Government Board sanctioned the borrowing of £13,885 to cover the cost of the building. The district includes the areas of Northwich rural and urban districts and the urban districts also of Winsford and Middlewich. The Cheshire county council is to borrow the money which is to be repaid by the joint authority minus the amount contributed by the council.

The Owens College Extensions.

The late Dr. Schunk, who was well known as a scientific chemist, left a large sum to the Owens College for the promotion of research and also his extensive and valuable library. As the result of this bequest the Schunk Laboratory will be opened early next month by Dr. W. H. Perkin, sen. It comprises a basement and a large laboratory on the first floor, with a balance room attached, and a library on the top storey which is to be finished most artistically. The laboratory proper is a spacious apartment overlooking Burlington-street. An extension of the inorganic laboratories and the metallurgical laboratory was decided upon some time since in honour of the centenary of the announcement of Dalton's atomic theory. During the centenary celebrations Professor van 'tHoff unveiled a memorial stone in the Dalton Laboratory. Although the

development of chemistry is such that in some directions it has extended into regions beyond the ken of the average medical student its progress will always be watched with sympathetic interest by the medical profession and with the feeling, moreover, that at any time new powers may be revealed that will strengthen the hands of those whose work it is to combat disease and suffering.

Port Sanitary Authority.

It is difficult for those not specially interested in the docks and the shipping to feel that Manchester is a seaport notwithstanding the fact that the annual report just issued by the medical officer, Dr. A. M. N. Pringle, is the seventh since the formation of the port sanitary authority in 1897. As the trade of the port gradually increases so do the cases of sickness that have to be investigated. In 1897 there were 16, in 1898 65, and in 1901 89, having gradually increased, but in 1902 there was a considerable rise to 144 while last year there were 124 cases. As Dr. Pringle says, with this progressive increase in the number of cases there is increasing liability to the importation of infectious disease not only from this cause but also from the increased area from which infection may come. He considers that the time is opportune "for the consideration of the question of international notification of infectious disease." At present the daily papers supply all the information available. He would have at least plague, small-pox, and cholera notified internationally. Last year there was only one case of small-pox, so that the ship-imported small-pox cannot rival that carried about the country by tramps. There were 2977 inspections in 1903 as compared with 2965 in 1902. Of the vessels inspected 1311 were British steamships, 721 were British sailing ships, and 39 were foreign sailing ships.

June 28th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

British Medical Association.

AT the annual meeting of the Worcestershire and Herefordshire branch of the British Medical Association held at Hereford on June 24th Dr. J. B. Fitzsimons of Hereford was elected president and Mr. T. Preston Gostling of Worcester president-elect. Dr. George W. Crowe of Worcester, who is the joint representative on the council of the Association of this branch and the Gloucestershire branch, was re-elected secretary, an office which he has held for many years. In his presidential address Dr. Fitzsimons dealt with the influence of hospital isolation upon scarlet fever in the city of Hereford. It appears that cases of scarlet fever have been notified in Hereford for the past 20 years and compulsorily so for 17 years. The isolation hospital has been available for ten years. In the ten years prior to the establishment of the hospital there was a yearly average of 1·44 per 1000 of the population attacked with scarlet fever with a case mortality of 4·1 per cent. and a death-rate of 0·06 per 1000 of the population. In the first five years after the opening of the hospital a yearly average of 5·8 per 1000 were attacked, 33 per cent. of these were removed to the hospital, there was a case mortality for the whole town of 4·1 per cent., and a death-rate of 0·24 per 1000. In the second five years, when 68 per cent. of the cases reported were isolated in the hospital, there was an attack rate of 1·8 per 1000, a case mortality of 1 per cent., and a death-rate of 0·016 per 1000 of the entire population. In the first five hospital years there was an average yearly death-rate among children under five years of age of 1·7 per 100 of the children living at that age group, while in the second five hospital years there were no deaths recorded of children below five years of age. Dr. Fitzsimons, who is the medical superintendent of the Hereford Isolation Hospital, stated that he discharged most patients at the end of six weeks from the commencement of the disease and he had only had two "return" cases. He thought that in certain instances this period of detention might be shortened. In the discussion which followed the reading of the address several speakers emphasised the important part played by nasal and aural discharges in spreading the infection.

The Midwives Act.

The medical officer of health of Cardiff (Dr. E. Walford) has given a great deal of careful thought to the administration of the Midwives Act. The borough council as the local supervising authority delegated all its powers and duties to the health and port sanitary committee. Dr. Walford, who was appointed executive officer, has upon more than one occasion suggested the establishment in Cardiff of a training centre for midwives and it appears to be likely that his suggestion will be carried out. The council of the Cardiff University College has expressed its willingness to establish a course of lectures for midwives provided certain financial assistance can be relied upon. The technical instruction committee of the borough of Cardiff has promised to contribute £50 yearly towards the scheme and the education committee of the Glamorgan county council has recently been approached on the subject by a deputation from the Cardiff division of the British Medical Association. Dr. E. J. Maclean told the committee that of the 40,000 children born annually in the six southern counties of Wales 30,000 were born in Glamorganshire and he said it was estimated that 19,500 labours in that county were attended by 1000 women acting as midwives. He further pointed out that the accidents of childbirth and the number of cases of puerperal septic diseases were very considerably higher in the county of Glamorgan than in other parts of England and Wales.

Bangor University College.

It is announced that £42,000 have already been subscribed towards the fund for providing permanent buildings at Bangor for the University of Wales. The total amount required is estimated at £175,000.

West Wales Sanatorium.

As the result of a conference between representatives of the county councils of Carmarthen, Cardigan, and Pembroke and Sir John Williams and other members of the West Wales branch of the National Association for the Prevention of Consumption and other Forms of Tuberculosis a recommendation is to be made to the county councils named to contribute an aggregate sum of £3000 towards the cost of erecting a sanatorium near Llanybyther in Carmarthenshire.

New Waterworks at Street.

The completion of waterworks for the supply of the town of Street in Somerset was formally recognised on June 18th. The town has a population of about 4000 persons and the cost of the undertaking was £25,000. Water is brought from the Mendip Hills and is stored in a low level and a high level reservoir, being raised to the latter by suitable pumping machinery.

A Small-pox Hospital for Kingswood.

At a meeting of the Kingswood (Bristol) urban council held on June 20th it was reported that a case of small-pox had occurred in the district. The council decided on the immediate erection of an iron hospital containing six beds for small-pox cases at an estimated cost of about £400.

Medical Cricket Match at Bristol.

The annual cricket match between members of the staff and students of the Royal Infirmary and General Hospital was played at the Gloucestershire county cricket ground, Bristol, on June 23rd and resulted in a win for the former team by 59 runs.

June 27th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Alcoholism and Insanity.

IN submitting his annual report at the meeting of the directors of Dundee Royal Lunatic Asylum Dr. W. Tuach stated that in 20 cases admitted to the Royal Asylum it was demonstrated that the patients were hereditarily predisposed to mental disease, and next to heredity as a causative agent had to be put intemperance in drink, this having been shown to be the exciting cause in ten cases. To those whose work lay among the insane the rôle which intemperance in drink as an exciting cause of mental disease played in the filling of asylums was becoming more and more evident each year. The numbers admitted from this cause were increasing steadily from year to year. Drink was a black spot in our social life. It was very difficult to say whether a man was insane because he drank to excess or whether he drank because he was insane.

An Aberdeen Physician in the Far East.

The Hong-Kong papers contain eulogistic notices of the

work of Dr. W. Hunter, bacteriologist for the colony, as brought before the community in his report to the Government for the past year. The total number of cases which came under the notice of Dr. Hunter as Government bacteriologist in 1903 was 2326, of which plague accounted for 917, beri-beri 160, malaria 93, marasmatic conditions 200, acute broncho-pneumonia 96, acute fibrinous pneumonia 78, and diarrhœa 69. The nationalities were Chinese 2288, European 17, Portuguese 12, Indian 5, Japanese 3, and Malay 1. Only two Europeans died from plague. During the year 101,056 rats were bacteriologically examined at the mortuary, 3744 being plague-infected, a percentage of 3·7. Although the number examined was 16,783 less than the preceding year 1729 more were found to be infected.

June 28th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Salaries of Poor-law Medical Officers.

Mr. R. F. Tobin, President of the Irish Medical Association, in a letter which appeared in the *Irish Times* of June 20th draws attention to a recent Parliamentary report in which the salaries, scales of travelling expenses, and qualifications of some of the officials employed by the county councils in Ireland are set forth as follows:—

Agricultural instructors.—Salary £200 per annum. Travelling allowance: actual expenses. In some cases restricted to £100 a year. Qualifications: Knowledge gained in farming or through a course at an agricultural college.

Poultry instructresses.—Salary (of majority) £150 a year. Travelling allowance: actual expenses. 3*d.* a mile car hire; 2*d.* a mile bicycle allowance. Qualifications: a ten weeks' course at the Reading Poultry School.

Dispensary doctor.—Salary (average) £109 a year. Travelling allowance: *nil*. Pays his own car hire. Qualifications: an examination in arts and a five years' costly and difficult medical curriculum.

The table speaks for itself.

The Treatment of Consumptive Patients.

The Local Government Board has written a letter (dated June 20th), pointing out that both the Belfast corporation and the guardians had important duties to perform in connexion with the large number of cases of consumption occurring in Belfast. It was desirable that the two bodies should coöperate or confer so as to make the best provision for the following objects: (1) the treatment and cure of suitable cases of consumption at an early stage of the disease in a sanatorium properly situated, constructed, and equipped; and (2) the isolation and care of all the other cases of consumption which seek hospital treatment. The Belfast corporation, the Local Government Board thought, should prevent the spread of the disease by taking charge of the earlier and more curable cases in a sanatorium situated on some carefully selected site, while the guardians should acquire a suitable house and grounds as an additional workhouse for cases at a stage of the disease which gave little hope of ultimate cure. A suggestion was made that the corporation should communicate with the sanitary authorities of the neighbouring districts with the view to the establishment of a joint board for the management of a sanatorium for the cure of consumption, as had been done in county Cork. As to the Abbey (the place suggested by the guardians for their consumptive cases), before the Local Government Board came to a decision as to its suitability or not, it wished the guardians and the corporation to consider the whole matter in the broadest light and to determine the lines upon which they propose to deal with that important question. There will probably be a joint meeting of the public health committee of the corporation and the sanatorium committee of the guardians, but the feeling of the public health committee is that its members have enough to do in looking after the affairs of the city and that those outside the city must look after their own affairs.

Igazol in Phthisis.

For some time Mr. R. Hall has been using igazol (formaldehyde) for medicating the air in the Belfast union infirmary wards for pulmonary tuberculosis patients. The Local Government Board would not sanction the drug as it was not on its list and so its use had to be discontinued as the guardians would be surcharged with its cost. A special committee of the guardians reported on June 21st that the results of its discontinuance were deplorable as shown by higher temperatures, increased night sweats, and coughing, and it recommended the board to sanction the resumption of its use, and the guardians accordingly asked the Local Government Board to place it on its prescribed list. The Local Government Board apparently believes very little in original research.

Houses without Water-closets in Belfast.

Mr. G. A. Doran, a newly elected councillor of the Belfast corporation, appeared before the public health committee on June 23rd with a list of 252 houses in Dock Ward (the one which he represents) which have no water-closet accommodation. He gave a list of the streets in which these houses are situated.

The Small-pox Epidemic.

Four of the Limavady small-pox patients have left the hospital convalescent and four still remain but are doing well. There are some cases in Lisburn and in Belfast there are still between 30 and 40 cases at Purdysburn. A fresh case occurred on June 28th.

June 28th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Walking Exercise in the Treatment of Varix.

AT a meeting of the Academy of Medicine held on June 14th M. Marchais read a paper in which he said that the methods hitherto adopted in the treatment of varix were directed not to the varix itself but to the effects produced by it, and that recovery from these effects was likely to be followed by a recurrence of them. The symptoms of fatigue, œdema, pain, and ulceration were due to periphlebitis or infiltration round the veins caused and aggravated by venous distension. The distension and œdema disappeared if means were employed to accelerate the circulation; the varix was in this way cured if it was recent and the general symptoms were relieved if the vein was sclerosed. Physiological observation had shown that walking promoted the flow of blood in the veins of the lower limb, so that walking might be included among methods of treatment to be recommended. The patients soon became tired because they suffered from œdema and muscular atrophy but after the correction of these conditions by the use of massage they could walk at a good pace for two or three hours a day. M. Marchais quoted 22 cases in support of his views.

Treatment of Cancer of the Stomach by the Roentgen Rays.

At the same meeting of the Academy M. Doumer and M. Lemoine described the radio-therapeutic treatment which they had used in 20 cases of tumour of the stomach. Of this number three were completely and permanently cured, a fourth patient (a female) was on the way to recovery, and a fifth (also a female), whose improvement had been remarkably rapid and whose tumour had completely disappeared, had a relapse which was unfortunately not treated by the rays. In the other patients the results varied. One of the first patients (a female), whose case was published in April, 1903, has continued in good health without any relapse. She can take any kind of food, she has become stout, and all the former local and general symptoms, such as vomiting, melæna, swelling, yellowness of the skin, and failure of strength, have come to an end. Recovery has been maintained for a year. The tumour, which was as large as a hen's egg, disappeared after seven exposures. Other patients suffered from cancer of the stomach, the diagnostic symptoms being the presence of tumours of varying size, vomiting of food, gastric hæmorrhage, gastric pain, dyspepsia, and emaciation. In the successful cases the functional disturbances were completely relieved and the tumour itself diminished in size or disappeared.

Remedial Effect of Formic Acid in Muscular Fatigue.

At the same meeting of the Academy M. Huchard read a remarkable communication by Dr. Clément who believed that formic acid possessed an unsuspected power of increasing muscular energy and relieving muscular fatigue. According to him, observations made with the dynamometer and the ergograph of Mosso showed that persons who had taken formic acid became capable of doing a greatly increased amount of muscular work without fatigue. The effect was perceptible on and after the third day of the treatment which was simple and free from danger. It consisted in taking every day in two portions from 30 to

50 drops of commercial formic acid in half a glassful of water; before it was swallowed the acid, which would irritate the stomach, was neutralised by the cautious addition of bicarbonate of sodium until gas was no longer evolved. In conclusion Dr. Clément made some reference to the advantages of his discovery as regarded from the social reformer's point of view; he believed, in fact, that alcohol would now have to encounter a formidable competitor.

Sarcoma of the Floor of the Orbit treated by the Roentgen Rays.

At a meeting of the Société Médicale des Hôpitaux held on June 10th M. Béclère reported the case of a man who was attacked with malignant sarcoma four years ago and had undergone two operations on this account, the last of them being enucleation of the eye. There was subsequent recurrence of the disease on a level with the cheek, the skin of which was raised by the new growth. Arsenic and quinine having produced no effect the patient was treated with the Roentgen rays. From this period there was an improvement which now appeared to have ended in complete recovery. It was natural to attribute this result to the Roentgen rays but it ought to be mentioned that each exposure to the rays was preceded by a subcutaneous injection of quinine. The Roentgen rays have therefore a selective action not only upon epithelioma but also upon sarcoma and new growths generally, the integument traversed by the rays remaining unaffected.

The Treatment of Appendicular Abscess spreading into the Pelvis.

On June 15th M. Chaput read before the Society of Surgery an account of seven cases of appendicular abscess spreading into the pelvis, in four of which he had opened the abscess through the rectum and in three of which he had performed either anterior or posterior colpotomy. All the cases did well. In studying the best means of reaching such abscesses he had decided that the route by the side of the bladder or by way of the perineum necessitated a very large and deep wound which rendered asepsis complicated and the reaching of the abscess difficult. The abdominal route might be followed by a ventral hernia or by fæcal fistula. Moreover, such a wound drained badly, gave rise to collections of fluid in the hypogastrium, and was often followed by death. The vaginal route was admirable in women who were not virgins and although there was sometimes considerable hæmorrhage this was easily stopped by sponge pressure. The rectal route which had been practised in France by Jaboulay and his pupils and by Bérard and Patel presented the following advantages: general anæsthesia was not needed, the operation was simple and quickly performed, the wound was small, the drainage was good, there was no danger of hernia, and the patient recovered in from eight to ten days. Of 43 cases reported by Jaboulay, Rotter, and Chaput none of the patients died.

Successful Treatment of an Alcoholic against his Will and without his Knowledge by Suggestion during Natural Sleep.

At the third annual session of the Society of Hypnology and Psychology held on June 21st M. Farez related the case of a man, aged 25 years. He was married and the father of a family and every day he was in the habit of drinking a litre of wine besides many bocks of beer, rum, "amer," vermouth, and absinthe. Most of the week he was drunk but was usually quiet, although if he drank more absinthe than usual he became very violent. He broke up the furniture and knocked his wife about so that on one occasion she was prematurely confined. He lost a good situation and being incapable of any work passed all his time at a café. As he refused any treatment suggestion was employed without his knowledge during natural sleep. After some weeks he had no outbursts of violence and he improved month by month. As in all cases of alcoholism treatment had to be prolonged, for no definite cure can occur until the will has had time to be reconstituted. At the end of 18 months he was quite well, he went no more to the café, and only drank a little light beer with his meals. This method of suggestion during natural sleep may also be usefully employed in cases of patients suffering from obsessions or delirium who cannot be hypnotised and suggestion of this kind appears just as efficacious as that given during profound hypnotism.

The Importance of the Retention of Water by the Tissues in Acute Infections, especially in Pneumonia.

At the meeting of the Society of Biology held on June 18th M. Garnier and M. Sabareau stated that by applying the method of daily weighings to the study of pneumonia they found that the weight of a patient did not decrease but might slightly increase during the febrile period. At the commencement of defervescence or two or three days later the weight diminished and the loss might be as much as five kilogrammes; it then remained stationary and afterwards went up again. The maintenance of the weight during the febrile period when very little food is being taken is due to a diminution in the excreta, more especially as regards water and sodium chloride. There is, in fact, a real cry for water on the part of the tissues in acute infections, as chemical analysis of the organs shows, and the retention of water is an active and not merely a passive phenomenon which necessitates the retention of sodium chloride to satisfy the laws of osmosis. At the approach of death this retention ceases and the weight rapidly falls in a fatal case, as much as two kilogrammes in 24 hours, while the secretion of urine increases.

International Exhibition of Hygiene.

From August to November next there will be held at Paris an international exhibition comprising the subjects of hygiene, life saving, fishing, sports, and aid to the wounded. The following subjects are included in the classes dealing more directly with medicine and pharmacy. Class II.: Medical and pharmaceutical arts, accessories, and chemical products. Section 1. Drugs in general. Section 2. Perfumery. Section 3. Pharmaceutical accessories. Section 4. Pharmaceutical products. Section 5. Veterinary matters. Section 6. Products for colonial exportation. Section 7. Medicine. Section 8. Various accessories. Section 9. Surgery.

June 27th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Intrabronchial Injections in Pulmonary Disease.

AT a recent meeting of the Verein für Innere Medicin Professor Jacob read a paper on the Treatment of Tuberculosis by Direct Introduction of Medicated Solutions into the Lungs. He said that the treatment of tuberculosis by medicine had hitherto failed because of the impossibility of bringing a sufficient amount of any drug into contact with the diseased parts by ordinary methods of internal administration. He therefore endeavoured to inject fluids into the bronchi beyond the bifurcation, using rabbits in his first experiments. He commenced by performing tracheotomy and was then able to inject from five to 15 cubic centimetres of fluid through the cannula without any symptoms of suffocation. Aniline-blue solution administered in this way was found to enter into the pulmonary tissue, whilst after intravenous injections the mesenteric glands only showed some blue spots. These preliminary experiments were repeated on a calf, the result being as satisfactory as in the rabbits. In the next place five tuberculous cows were used for therapeutical experiments which Professor Jacob carried out in conjunction with Dr. Bougert, chief veterinary surgeon of the Berlin Cattle Market. As before, the injection was made by means of a catheter through a cannula after tracheotomy. 500 cubic centimetres of fluid could be injected without any undesirable complication. The animals were not hobbled and after being treated they were able to eat as usual. Injections were given as a rule twice a week and during the course of the treatment 25 of them were administered. There was an abundant discharge of mucus and the temperature of the animals rose 1° or 2° C. for about 36 hours, afterwards becoming normal. As to the compounds employed, it was found that tuberculin gave the best results, then came creasote, hetol, and methylene blue, pyoktanin being the least efficacious. The animals treated with tuberculin and creasote obviously improved as regards clinical symptoms and their weight increased, the improvement being of less extent in those treated with hetol and methylene blue, whilst the animal treated with pyoktanin died in a short time. To ascertain whether the action of the above compounds in the relatively weak solution used for the experiments was really bactericidal and not merely an irritant one experiments were made on rabbits and it was found that the tubercle bacilli were really destroyed. After the possibility of direct injection into the lungs

had been proved in animals Professor Jacob proceeded to make use of it in the human subject. The idea of local treatment of bronchial and pulmonary diseases was, he said, of ancient date, but inhalation was the only means that had hitherto been found practicable for the administration of medicines with this object and it was known that fluids administered in this manner did not make their way to the lungs, whereas when injected they were brought into direct contact with the diseased part. The procedure was not at all complicated and was quite within the power of any medical man acquainted with laryngoscopy. The larynx and trachea were first anæsthetised with cocaine and anæsthesin, after which a small caoutchouc tube was passed through the mouth, the larynx, and the trachea. The patient was then placed so that his head was in a reclining position and some grammes of the solution were injected with a small syringe. Injections of tuberculin and creasote caused disappearance of the tubercle bacilli in from four to eight weeks. A febrile reaction occurred after the use of tuberculin and Professor Jacob was of opinion that the injection method, apart from its therapeutical advantages, might also be used for the tuberculin test to ascertain in doubtful cases whether a case was one of tuberculosis or not and which of the lungs was affected. Up to the present time five patients had been treated by injection; the results were described as satisfactory so that the treatment was to be continued on a larger scale. The discussion of the paper was adjourned to the next meeting of the society.

Professor Koch.

Professor Robert Koch, after an absence of one and a half years, returned to Berlin on June 11th. The rumour that he had intended to leave Berlin altogether and to enter the British colonial service was unfounded, as I have already stated in THE LANCET of Feb. 27th, 1904, p. 617. It will be remembered that he went to British South Africa at the request of the colonial authorities for the purpose of carrying out investigations on Texas fever and on horse sickness which are so prevalent in that part of the world. The medical profession will be glad to learn that Professor Koch's health is as good as ever and that he was able at once to resume his duties as chief of the Royal Institution for Infectious Disease. Since his return he has been interviewed by a medical man belonging to the staff of the *Lokal Anzeiger*, an important Berlin daily paper, and he is said to be very well satisfied with the results of his stay in South Africa. He told his interviewer that his work lay almost exclusively in Rhodesia and that he had discovered that the cattle suffered neither from rinderpest nor from Texas fever but from a specific disease which had long been prevalent on the East African coast and had probably been imported into Rhodesia by cattle brought from the coast. Professor Koch said that he had recognised the disease seven years ago on the coast of German East Africa, that it had been termed by him "coast fever," and that he had succeeded in finding a method of immunising cattle against it. He had also made an investigation of the so-called "horse sickness," from which about 90 per cent. of the horses died in some districts and which had hitherto resisted all curative and immunising methods. Professor Koch is said to have devised means of immunisation which worked satisfactorily in the laboratory but must, of course, be tried in cases of natural infection; the laboratory experiments will be continued in Berlin. It would be of interest to know Professor Koch's opinion as to Professor Behring's theory on the subject of tuberculosis. Professor Behring's views were published during Professor Koch's absence and I learn from a trustworthy source that the latter has no intention of renewing the discussion because his belief in the essential difference between bovine and human tuberculosis remains unaltered.

Poisoning by Acetone.

Dr. Cossmann, surgeon to the Duisburg Hospital, writing to the *Münchener Medicinische Wochenschrift*, reports a case of poisoning by acetone which had been used as a solvent of celluloid in the making of a surgical appliance. The patient suffered from tuberculosis of the hip-joint and a sort of splint had been applied consisting in part of gauze bandages moistened with the acetone solution. A few hours later the patient passed into a state resembling diabetic coma, associated with somnolence, difficult respiration, and irregular pulse. Most of the symptoms disappeared after the removal of the splint and the use of artificial respiration, hot compresses, and injections of saline solution, but the somnolence and unconsciousness continued for about 24 hours. The urine and the vomited matter contained acetone and there was a strong smell of that substance in the breath. Obviously the acetone must have been absorbed through the skin. Attempts to poison a dog by applying an acetone dressing were, however, unsuccessful.

June 23th.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The order of the first examination at Cambridge in tropical medicine and hygiene to be held in August next is as follows: Tuesday, August 9th, from 9 A.M. to 12 noon, in the New Medical Buildings (Cambridge), paper in pathology and bacteriology, and from 2 to 6 P.M., in the New Medical Buildings, oral and practical; Wednesday, August 10th, from 9 A.M. to 12 noon, in the New Medical Buildings, paper in medicine and hygiene, and from 2 to 6 P.M., in the New Medical Buildings, oral and practical; and on Thursday, August 11th, beginning at 3 P.M. punctually, in the wards of the Seamen's Hospital Society, Branch Hospital, Royal Albert Dock, London, E., clinical medicine and surgery.—The following degrees were conferred on June 21st:—

Bachelor of Medicine.—J. E. Pellow, St. John's; E. A. A. Beck, Clare; W. H. Hills, Pembroke; J. S. Cooper, Jesus; G. S. Colt and J. B. Dunlop, Sidney-Sussex; and A. R. Brailey, Downing.
Bachelor of Surgery.—A. W. D. Coventon, W. L. Cripps, H. M. Davies, E. Harrison, and R. H. Robbins, Trinity; D. H. Fraser, Caius; J. S. Cooper, J. Goss, and B. H. Stewart, Jesus; R. A. Clapham and R. O. Lee, Emmanuel; and G. H. Colt and J. B. Dunlop, Sidney-Sussex.

During the year thus closed the numbers of medical and surgical degrees conferred are given as follows: B.C., 80; M.B., 72; M.C., 3; and M.D., 19.

At the third examination for medical and surgical degrees, Easter term, the following candidates were successful:—

Part II. Surgery, Midwifery, and Medicine.—A. E. Barclay, M.A., Christ's; H. J. D. Birkett, B.A., Trinity; E. M. Brown, B.A., and S. Child, B.A., Pembroke; R. A. Clapham, B.A., Emmanuel; G. H. Colt, B.A., Sidney Sussex; A. W. D. Coventon, B.A., W. L. Cripps, B.A., H. M. Davies, B.A., and R. G. Elwell, B.A., Trinity; H. Falk, B.A., King's; G. R. Footner, B.A., Pembroke; D. H. Fraser, B.A., Caius; J. Goss, B.A., Jesus; C. F. Hadfield, M.A., and Everard Harrison, B.A., Trinity; W. Hastings, B.A., Christ's; T. G. M. Hine, M.A., and H. F. Horne, B.A., King's; W. E. Hume, B.A., Pembroke; K. H. A. Kellie, B.A., Caius; J. Lambert, B.A., Downing; R. O. Lee, B.A., Emmanuel; T. C. Lucas, B.A., Clare; S. M. Mackenzie, B.A., Trinity; C. W. P. Moffatt, B.A., Clare; W. M. Mollison, B.A., King's; A. R. Moore, B.A., Caius; R. F. Moore, B.A., Christ's; W. V. Naish, M.A., Emmanuel; R. G. Nothwanger, M.A., and C. T. MacL. Plowright, B.A., St. John's; C. A. W. Pope, B.A., H. Rischbeith, M.A., and R. H. Robbins, B.A., Trinity; B. H. Stewart, B.A., Jesus; C. Stiebel, Trinity Hall; G. A. Ticehurst, B.A., St. John's; R. E. Whitting, B.A., King's; and R. A. Worthington, B.A., Clare.

TRINITY COLLEGE, DUBLIN.—At examinations held at Trinity term the following candidates were successful:—

PREVIOUS MEDICAL EXAMINATION.

Anatomy and Institutes of Medicine.—John C. P. Beatty, Francis R. Coppinger, Robert E. Wright, Thomas J. Cobbe, Thomas H. Peyton, John W. Tomb, Charles T. Atkinson, Richard Connell, Richard G. S. Gregg, Gustav W. Thompson, Theodore C. Somerville, Charles G. Sherlock, Reginald Holmes, Thomas L. de Courcey, Henry D. Drennan, Dudley S. Torrens, Edward C. Stoney, Herbert J. Wright, Malcolm K. Acheson, William Hutchison, Robert B. Jackson, George E. G. Vickery, Francis Casement, Francis W. H. Bigley, Ernest Jameson, Ernest D. Caddell, Edward Evans, and William A. Nicholson.
Physics and Chemistry.—Richard P. Hadden, Charles F. F. Davies, William R. G. Atkins, Ernest C. Lambkin, Dixie P. Clement, Johannes C. Pretorius, Robert V. Dixon, James F. Clarke, Douglas M. Moffatt, Robert G. Orr, William E. Hopkins, Frederick A. Anderson, Gerald Mecredy, Henry H. Ormsby, Samuel F. A. Charles, Norman Jewell, Charles W. Laird, James D. Murphy, John L. Phibbs, Albert V. Richardson, Harold S. Sugars, and Richard J. Attridge.
Botany and Zoology.—Ralph T. Brooks, Arthur H. Land, Ernest C. Lambkin, Charles F. F. Davies, Richard P. Hadden, Albert J. Stals, William E. Hopkins, Charles W. Laird, Charles G. S. Baronsfeather, Henry R. Kenny, Johannes C. Pretorius, Dixie P. Clement, Frank N. Smartt, Robert E. T. Tatlow, Douglas M. Moffatt, John L. Phibbs, William R. G. Atkins, Thomas P. S. Eves, William Knapp, George H. Stack, James Brereton-Barry, Gordon A. Jackson, Norman Jewell, Alfred H. Smith, Alexander S. Winder, James Beckett, Derrick W. Knight, John T. M'Donnell, Kenneth Smith, Cecil Grene, and Frederick C. Newland.

DIPLOMA IN PUBLIC HEALTH.

Parts I. and II.—Alexander H. Marks.

ALLEGED IMPROPER TREATMENT OF CHILDREN UNDER THE POOR-LAW.—At a recent meeting of the Fylde board of guardians Miss Johnson, a new member of the

board, asked for an inquiry respecting certain children attached to the union who are being sent to school while suffering from ringworm and ophthalmia. Miss Johnson also alleged that she had seen children who were suffering from ringworm walking about barefooted on stone floors. It is suggested that pressure on the part of the school attendance officer is the reason for children being sent to school while suffering from disease of an infectious nature. A full inquiry is urgently necessary, and the new lady guardian is to be congratulated upon the direction which her energies have taken. In view of an investigation we withhold further comment.

ROYAL ARMY MEDICAL CORPS MILITIA.—Colonel Sir J. R. A. Clark, Bart., C.B., and the officers of the Royal Army Medical Corps Militia dined together on June 21st at the Trocadéro Restaurant, London. The company included some distinguished guests and to the right of the chair were seated Director-General Sir W. Taylor, K.C.B., Major M. O'Connor, Colonel A. T. Sloggett, C.M.G., Captain A. H. Benson, Colonel H. B. Williams, Major T. McCulloch, Captain E. W. Bartholomew, and Lieutenant-Colonel E. M. Wilson, C.B., C.M.G. To the left of the chair were seated Sir E. Cooper Perry, Captain J. Tracy Simpson, Colonel H. E. R. James, Lieutenant J. C. Furness, Lieutenant-Colonel M. W. Russell, Major Thurston, Captain S. G. McAllum, and Lieutenant-Colonel G. Robinson. The toast list consisted of the following: "The King," "The Queen and the Princess of Wales and the rest of the Royal Family," and "The Guests." These were simply given from the chair without any speeches, the band in each case playing an appropriate tune. In spite of the absence of the usual after-dinner oratory the guests and their hosts passed the time most pleasantly and the dinner was in every way a great success.

PRIZE DAY AT ST. THOMAS'S HOSPITAL.—Prize Day at St. Thomas's Hospital took place on June 24th and attracted a large and fashionable gathering which assembled in the Governors' Hall of the hospital under the chairmanship of the treasurer, Mr. J. G. Wainwright, J.P., who in the course of his opening remarks said that the new nurses' home which was intended to accommodate 185 nurses was rapidly approaching completion. He also alluded to the fact that two children's wards had been added to the hospital. The out-patient department demanded increased accommodation and he hoped that that would soon be provided for by a well-matured scheme. After the prizes had been distributed by Sir Thomas Barlow he proceeded to give to the students most excellent advice. He commented particularly on the value of *viva-voce* examinations as a means of getting rid of the self-consciousness which sometimes is a hindrance to young medical men. He urged the importance of careful diagnosis and recommended the students to remember that the smallest details for the relief of pain were worthy of thought and study. After Sir Thomas Barlow had received and acknowledged a cordial vote of thanks the company dispersed into the various departments of the hospital and school and were entertained at a garden party held on the terrace.

NATIONAL HEALTH SOCIETY.—Dr. George Newman, medical officer of health of the metropolitan borough of Finsbury, was one of the principal speakers at the meeting of the National Health Society at the Mansion House on June 28th. In proposing a motion approving of the work of the society Dr. Newman drew attention to the increase in the number of industries which afforded employment for women. He said that there were now employed in the county of London some 720,000 women in various occupations. About 240,000 of these were engaged in occupations at home and the remainder were in factories and other similar places. The above created a need—and it was a very real need—for the existence of such societies as the National Health Society and he insisted on the fact that the rules of health must be taught in the homes of the people by the society. Sir James Crichton-Browne, who seconded a vote of thanks to Princess Christian for being present, observed that the public had awoke to the fact that the stamina of the people was not all that it ought to be. There was an undue proportion of sickly children and the superabundance of degeneration and infirmity afforded a large field for the labours of the National Health Society, whilst there was such lamentable ignorance among the poor in connexion with sanitary matters. It was against physiological and hygienic ignorance that the society directed its energies. Sir William S. Church, who moved the vote of thanks to the Lord Mayor for lending the Mansion House, said that legislation was useless if it was in advance of the general intelligence and knowledge of the population. What the society had to do was to bring home to the mothers of the people the few simple rules on which was founded all true sanitation. The meeting was held in the Egyptian Hall of the Mansion House and was principally attended by ladies.

THE Gaskell Park, St. Helens, presented to the public by Surgeon-Lieutenant-Colonel Gaskell, V.D., J.P., was opened by the donor on June 23rd in the presence of the mayor and corporation.

A MEDICAL YACHTSMAN.—The victory of the *Valdora* in the Heligoland yacht race is very popular among West of England yachtsmen, the owner of the *Valdora* being Dr. J. G. Douglas Kerr of Bath.

THE LATE DR E. LONG FOX.—The first of the annual lectures which are to be delivered in memory of the late Dr. E. Long Fox of Clifton will be delivered in November next by Dr. John Beddoe.

DEATH OF A CENTENARIAN.—Mrs. Mary Buckingham Edgcome, widow of the late Dr. James Edgcome of Brunswick-square, London, died at Surbiton, Surrey, on June 21st. She was born in Cornwall on June 12th, 1804, and for many years resided at Surbiton.

LITERARY INTELLIGENCE.—A third and considerably enlarged edition of Dr. Ralph W. Leftwich's "Index of Symptoms" will be published by Messrs. Smith, Elder, and Co. immediately. The last edition had a somewhat bald appearance from the multitude of unbroken columns. This has been remedied by breaking up the last chapter on Methods of Diagnosis and inserting its different parts under their respective headings. Dr. Leftwich has also added much similar matter, besides making the work more complete, and he has endeavoured in the new edition to meet the requirements of the medical student.

SOUTH AFRICAN CIVIL SURGEONS' DINNER.—The South African Civil Surgeons' dinner took place on June 28th at the Hotel Cecil, London, Mr. G. H. Makins, C.B., being in the chair. There was a good attendance and amongst those present were Mr. J. Tweedy (President of the Royal College of Surgeons of England), Sir William Taylor, K.C.B., Sir William D. Wilson, K.C.M.G., Mr. W. Watson Cheyne, C.B., Mr. C. T. Dent, Surgeon-General A. H. Keogh, C.B., Mr. A. A. Bowlby, C.M.G., Dr. H. H. Tooth, C.M.G., Mr. C. Stonham, C.M.G., Mr. F. C. Wallis, Mr. G. Stoker, C.M.G., and Mr. C. G. Watson. After the usual toasts had been honoured Mr. Makins proposed the toast of "The Imperial Forces." He said that the navy let the public know very little about how or in what way changes were carried out on board ship. The "man in the street," on the other hand, heard a good deal about the army and the changes which were going on daily therein, but he (Mr. Makins) supposed that they must put their trust in Providence and hope that things would come all right. The toast was responded to by Sir William Wilson, who was principal medical officer in South Africa during the war. He said that he had always been in favour of conferring rank on the civil surgeons after a necessary period of probation. The health of "The Chairman" was proposed by Sir William Taylor and suitably acknowledged. Everyone was grateful to Mr. Watson for his successful efforts in getting up the dinner.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Registration of Nurses.

THE Government has appointed the following Select Committee to consider the expediency of providing for the registration of nurses Mr. Robert Ambrose, Major Bagot, Sir Michael Foster, Mr. Arthur Henderson, Mr. Lyell, Mr. Malcolm, Viscount Morpeth, Mr. Pierpoint, Sir John Stirling-Maxwell, Mr. Tennant, and Sir John Batty Tuke.

Bills Abandoned.

An indication of the approach of the end of the session is to be found in a list of abandoned Bills issued this week. Among the Bills dropped will be found the following: Dr. R. Farquharson's Nurses Bill, Sir Herbert Maxwell's Sale of Whisky Bill, Sir Charles Dilke's Shops Bill,

Mr. Broadhurst's Vaccination Bill, and Mr. Channing's Vaccination Prosecutions Bill.

HOUSE OF LORDS.

FRIDAY, JUNE 24TH.

Beri-beri among Chinese Coolies.

The Marquis of RIPON made reference to what occurred in the House of Commons on Wednesday, when Dr. C. F. Hutchinson attempted to discuss the question of the existence of beri-beri among the Chinese coolies in South Africa, and he asked whether the Government had yet received official information.—The Marquis of LANSDOWNE replied in the negative. He added that it seemed clear that the case was one in which extraordinary precautions of some kind would be called for and he had no doubt that they would learn in due course that everything was being done to cope with the outbreak. The Government was perfectly aware that this disease was a dangerous one and it fully recognised that no pains should be spared to prevent its spreading.—Earl CADOGAN, speaking as an ex-Lord Lieutenant of Ireland, mentioned an outbreak of this disease which had occurred in a prison hospital in Dublin. Under the regulations it would not have been possible to deal with the emergency as rapidly as he wished. He, however, kept the matter in his own hands, transferring the patients to a disused prison and ordering the hospital to be cleansed. One or two fatal cases occurred but the severity of the disease was mitigated in a very short time and he thought that if this outbreak in South Africa was promptly and vigorously combated it would probably not be so severe and dangerous as seemed to be feared.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 22ND.

Beri-beri among Chinese Coolies.

Dr. HUTCHINSON asked the Secretary of State for the Colonies whether his attention had been called to the outbreak of beri-beri among the Chinese coolies who had recently arrived in South Africa; whether those who had developed the disease had been actually landed; whether those who had been exposed on board ship to infection had yet been sent up country to the compounds; and whether, having regard to the intensely infectious and dangerous character of this disease, from which South Africa was at present free, he would tell the House what steps had been taken to prevent the spreading of the disease in the colony.—Mr. LYTTELTON replied: I have received no report from Lord Milner on this subject. I have telegraphed but have received no reply. I have every confidence that, judging from the admirably efficient measures taken for dealing with the outbreak of plague, every precaution will be taken.—Dr. HUTCHINSON considered that this reply was extremely unsatisfactory and he asked leave to move the adjournment of the House "to call attention to a matter of urgent public importance, the imminent danger which arises from the introduction of a new highly infectious and fatal disease known as beri-beri into South Africa."—The Deputy Speaker (Mr. J. W. LOWTHER) held, however, that the question could not be discussed on a motion for the adjournment as it was covered, in his opinion, by one of the so-called "blocking motions" on the papers of the House.

Sore-throat in Glasgow.

Mr. WEIR asked the Secretary for Scotland whether he was aware that the epidemic of sore-throat which recently broke out at the Belvidere Hospital, Glasgow, was, like that at Woking last autumn and at Finchley early this year, attributable to the milk taken from cows out of health; and whether, seeing that Dr. A. K. Chalmers, the medical officer of health of Glasgow, stated that the outbreak in that city was due to teat eruption in the stock at the farm from which the milk supply was obtained, he would consider the expediency of introducing at an early date such legislation as might be necessary to insure the occasional examination by a veterinary surgeon of all cows kept for the purposes of a public dairy.—Mr. GRAHAM MURRAY said: I am informed by the Local Government Board for Scotland that it has Dr. Chalmers's report under consideration. As regards prospective legislation I can add nothing to the answer given to the question addressed by the honourable Member on June 13th to the President of the Local Government Board, but I may point out that under the existing law a local authority in Scotland is entitled to procure a report by a veterinary surgeon on the animals in any dairy from which the medical officer has evidence that infectious disease is likely to be spread.

Sanitary Condition of China Stations.

Sir SEYMOUR KING asked the Secretary of State for India whether the attention of the military authorities in India had been called to the insanitary state of the quarters and barracks of British officers and native ranks of the Indian contingent quartered in China at Shan-hai-kwan, Tientsin, and other stations; whether they were aware that at Shan-hai-kwan nearly every British officer has been at some time or other laid up with fever, dysentery, or diarrhœa, the quarters of both officers and men being in an old yamen the inclosure of which was the old bed of the river Shi-to and liable to be flooded; whether other foreign contingents at Shan-hai-kwan were well housed in forts captured by the British force in 1900 and at Tientsin had superior accommodation while those of our own troops had been reported on as in a disgraceful condition; and whether he would call for a report on the sanitary condition of the China stations and order that measures should be taken to secure healthy quarters for our troops.—Mr. ARNOLD-FORSTER replied: Money has been taken in Army Estimates for the improvement of the accommodation at Peking and Shan-hai-kwan but there is no information at the War Office to show the exact progress made with the work. Further, no recent information as to the health of the troops has been received at the War Office as the returns are sent to army headquarters in India but the question is one of importance as it concerns the health of officers and men and I will cause further inquiries to be made.

Tuberculosis in Ireland.

Sir MICHAEL FOSTER asked the Chief Secretary to the Lord Lieutenant of Ireland whether the Local Government Board for Ireland was taking the necessary steps towards remedying the insanitary conditions of the Clonmel district to which the prevalence of tuberculosis in that district had been attributed.—Mr. WYNDHAM replied: The Board's medical inspector directed attention in 1901 and 1902 to the insanitary condition of this district and the Board impressed upon the district council the duty of taking all such steps as were necessary to put the district in a satisfactory sanitary condition. The inspector will make another report at an early date and this report when received will be communicated to the local authority. The Board cannot compel the local authority to take action in the matter unless in pursuance of a complaint made to it in pursuance of the fifteenth section of the Public Health (Ireland) Act, 1896. No such complaint has yet been made to the Board.

The Alleged Ill-treatment of a Child.

Sir WALTER FOSTER asked the President of the Local Government Board whether his attention had been called to the case of the child, named Albert Algage, who was returned to the Westminster union from the St. Giles's receiving home with marks of injury on the face and limbs; whether he had received evidence to satisfy him that the injuries were not due to punishment or to want of proper care and supervision; and, if not, whether he would order an inquiry into the treatment of the child while an inmate of the receiving home.—Mr. LONG said: I am aware of this case and the inspector of the district has made investigation with regard to it. As a result he reports that the bruises were not in his opinion due to punishment or to want of proper care and supervision and that in all probability they were caused by the child himself. I do not think that any further inquiry is needed.

THURSDAY, JUNE 23RD.

Small-pox in Staffordshire.

Mr. COGHILL asked the President of the Local Government Board whether his attention had been called to the renewed outbreak of small-pox in North Staffordshire; and whether he could state what provision had been made for hospital accommodation by the local authorities and what steps the Local Government Board proposed to take to deal with the epidemic.—Mr. LONG said: I am aware that an outbreak of small-pox has occurred in the Leek urban district and in connexion with it I have sent a medical inspector to visit the locality and have received a report from him on the subject. Leek is included in the district of the North Staffordshire joint small-pox hospital board and up to the date of the inspector's report at the end of last week all the cases of small-pox had been removed to the temporary hospital provided by that board. Further and better hospital accommodation seems to be required. I have already sanctioned the borrowing of money by the hospital board for this purpose. I am pressing upon the board to proceed with the works and also to consider whether even further provision may not be needed.

A Medical Officer and Workhouse Dietary.

Mr. LOUGH asked the President of the Local Government Board whether his attention had been drawn to the proceedings of the medical officer of the Docking (Norfolk) board of guardians who had declined to accept the decision of the board in favour of the withdrawal of beer from the inmates of the workhouse and to the fact that the medical officer had given a fresh order for three pints of beer a day to be given to sick inmates since the order was issued; and, if so, under what authority the medical officer had acted and whether the Board proposed to take any, and, if any, what, steps in the matter.—Mr. LONG replied: My attention has been drawn to the case referred to. One of the regulations in force in the Docking union requires that the medical officer shall prescribe proper dietaries for the sick inmates of the workhouse. It is, however, provided that no allowance of fermented or spirituous liquor given by his direction to a sick inmate shall be continued for more than eight days, unless before the expiration of that period it is renewed for a further period not exceeding eight days by his direction in writing. Subject to the regulations in force it is for the medical officer to determine the dietary of the sick inmates and I could not undertake to interfere with his discretion in the matter.

Medical Appointments in Harris.

Mr. WEIR asked the Secretary for Scotland whether he was aware that the Return (Parochial Medical Officers, Scotland) was inaccurate in stating that the post of medical officer of Harris was vacant only once during the seven years prior to 1903, inasmuch as the post of medical officer was vacant on two occasions for the North Harris division and also on two occasions for the South Harris division; and whether in view of the fact that the return contained other inaccuracies of a similar nature he would consider the expediency of having an amended return issued.—Mr. GRAHAM MURRAY replied: The Local Government Board for Scotland has communicated with the inspector of poor of Harris who supplied the information given in the return and he states that, so far as he knows, it is not correct that the resident medical officership had been vacant since July 20th, 1896, in the northern division of the parish twice and also in the southern division of the parish twice. If the honourable Member will give the dates when the vacancies are said to have occurred the Local Government Board will make further inquiries.

MONDAY, JUNE 27TH.

A Ballinasloe Asylum Appointment.

Mr. LONSDALE asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that Dr. P. Kerley, who had been elected by the Ballinasloe Asylum committee to the position of second assistant medical officer, was married; and whether, seeing that the rules of the Privy Council governing such appointments provided that the second assistant medical officer must be unmarried, he proposed to take any, and if any what, action in the matter.—Mr. WYNDHAM said: Yes, sir. The rule prohibiting a married man from being appointed to the position of assistant medical officer of a district lunatic asylum is of universal application throughout the United Kingdom. It is embodied in an Order of the Lord Lieutenant in Council dated April 28th, 1898. I am advised that it would be most undesirable in the interests of the public service to depart from the rule and that the Lord Lieutenant has no power to dispense with its observance.

Fees of Public Vaccinators.

Mr. RUNCIMAN asked the President of the Local Government Board whether he had received any protests against the amount of minimum fees payable to public vaccinators under the Vaccination Order of the Local Government Board of 1898; whether he was aware that in the Gateshead union there were, during the four years previous to the passing of the Act, 6378 primary and 230 revaccinations by public vaccinators, in respect to which fees were paid amounting to £753 12s. 6d.

and during the four years since the passing of the Act there had been 10,574 primary vaccinations and 1048 revaccinations by public vaccinators, fees paid to them amounting to £3637 5s. 6d.; whether a departmental committee which was appointed to inquire into, and to report on, the subject of the costs and expenses borne by Poor-law guardians in connexion with vaccination had yet completed its inquiry; and if so, whether any suggestion had been made likely to abate the burden imposed on boards of guardians by the existing fees.—Mr. LONG replied: I received representations on the subject of the fees payable to public vaccinators and I am aware of the fees paid in the case of the Gateshead Union. It was in consequence of the representations made to me that I appointed the departmental committee referred to in the question. The committee has now made its report and its recommendations are receiving my consideration.

TUESDAY, JUNE 28TH.

Beri-beri.

Several questions were put to the Secretary of State for the Colonies in regard to the outbreak of beri-beri among the Chinese coolies in South Africa, but Mr. LYTTELTON replied that although he had telegraphed three times to Lord Milner for official information no reply had yet been received. He had no doubt it would be found that there was a good reason for the delay.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ADYE, W. J. ALEXANDER, M.R.C.S., L.S.A., has been re-appointed Medical Officer of Health by the Bradford-on-Avon (Wiltshire) Urban Council.

BAKER, JAMES PAYNE, L.R.C.P., F.R.C.S. Edin., has been appointed Public Vaccinator for the District of Tauranga, New Zealand.

BROWN, WILLIAM, M.B., Ch.M. Edin., has been appointed Public Vaccinator for the District of Tauranga, New Zealand.

BULL, STANLEY ARTHUR, M.D. Lond., has been appointed Public Vaccinator for the District of Auckland, New Zealand.

CAMERON, ROBERT ALLAN, M.B., Ch.B. Edin., has been appointed Public Vaccinator for the District of Wellington, New Zealand.

CANTRELL, CHARLES SEAWARD, M.B., Ch.B. Edin., has been appointed Public Vaccinator for the District of Invercargill, New Zealand.

CLOUSTON, JOHN, M.B., Ch.M. Edin., has been appointed Public Vaccinator for the Districts of Waiuku and Awhitu, New Zealand.

FENWICK, PERCIVAL CLENNEL, M.B. Lond., has been appointed Public Vaccinator for the District of Wanganui, New Zealand.

FOOKES, ERNEST FABER, M.B. Lond., has been appointed Public Vaccinator for the District of New Plymouth, New Zealand.

GRAY, WALTER GORDON, L.R.C.P., L.M. Edin., M.R.C.S., has been appointed Medical Officer of Health for the Holsworthy (Devon) Rural District for three years.

MEADE, CHARLES GRAHAM, L.S.A., has been appointed Medical Officer for the Witheridge District by the South Molton (Devon) Board of Guardians.

PARSONS, JOHN HERBERT, B.S., D.Sc., F.R.C.S., has been appointed Ophthalmic Surgeon to the Hospital for Sick Children, Great Ormond-street.

PRYCE, H. VAUGHAN, F.R.C.S. Eng., M.A., M.B., B.C. Cantab., has been appointed Honorary Medical Officer to the Brighton, Hove, and Preston Dispensary.

RICHARDS, THOMAS, L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer by the Cardiff Board of Guardians.

SHORT, T. SYDNEY, M.D. Lond., M.R.C.P., D.P.H. Cantab., has been appointed Honorary Physician to the General Hospital, Birmingham.

SIMPSON, LILIAN G., M.D. Brux., L.R.C.P. & S. Edin., has been appointed Senior Resident Medical Officer to the Canning Town Medical Mission Hospital and Dispensary.

WILLIAMS, W., M.A., M.D. Oxon., has been appointed Examiner in Preventive Medicine in the University of Oxford.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ARMY MEDICAL SERVICE, War Office.—Examination for not less than 30 Commissions in the Royal Army Medical Corps.

AYR COUNTY HOSPITAL.—Resident House Surgeon. Salary £70 per annum, with residence, board, and washing.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—House Surgeon. Salary £75 per annum, with board and lodging.

BRECON AND RADNOR ASYLUM, Talgarth, R.S.O.—Assistant Medical Officer, unmarried. Salary £140 per annum, with apartments, board, attendance, and laundry.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-Resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Assistant House Surgeon. Salary £60 per annum, with rooms, board, washing, and attendance.

DARENTH, DARTFORD, KENT, METROPOLITAN ASYLUMS BOARD ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, rising to £170, with rations, lodging, attendance, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—House Surgeon. Salary £50 per annum, with board and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Pathologist and Registrar. Honorarium of £100.

FARRINGDON GENERAL DISPENSARY, 11, Bartlett's-buildings, Holborn Circus, E.C.—Resident Medical Officer. Salary £120 per annum, with apartments, coals, gas, and attendance.

GRAVESEND HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

HEREFORD COUNTY AND CITY ASYLUM.—Senior Assistant Medical Officer, unmarried. Salary £150 per annum, with board lodging, and laundry.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Surgeon Dentist.

HUDDERSFIELD INFIRMARY.—Junior House Surgeon. Salary £40 per annum, with board, residence, and washing.

ISLE OF MAN GENERAL HOSPITAL AND DISPENSARY, Douglas.—Resident House Surgeon, unmarried. Salary £82 per annum, with board and washing.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Resident Medical Officer. Salary £200 per annum, with board, lodging, and washing.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Non-Resident House Surgeon for six months. Honorarium at rate of £50 per annum.

NEW ZEALAND, SEACLIFF LUNATIC ASYLUM, Dunedin.—Assistant Medical Officer, unmarried. Salary £250, with board, lodging, and washing.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and laundry. Also Assistant Surgeon.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-upon-Trent.—Assistant House Surgeon for six months. Honorarium £25, with board, lodging and washing.

NOTTINGHAMSHIRE CONSUMPTION SANATORIUM, Mansfield.—Resident Medical Officer. Salary £100 per annum, with board, lodging, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, with apartments, attendance, &c.

QUEEN'S JUBILEE HOSPITAL, Richmond-road, Earl's Court, S.W.—House Surgeon for three weeks from July 13th. Honorarium two guineas weekly, with board, residence, and laundry.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Ventnor.—Senior Resident Medical Officer, unmarried. Commencing salary £300 per annum, with board and lodging. Also Two Assistant Resident Medical Officers, unmarried. Salary £100 per annum, with board and lodging.

ROYAL ORTHOPÆDIC HOSPITAL, 55, Bolsover-street, W.—Resident House Surgeon and Registrar, unmarried. Salary £200 per annum, without board.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, Paddington, W.—Demonstrator of Biology. Salary £70 per annum.

ST. THOMAS'S HOSPITAL.—Casualty Officer for six months. Salary at rate of £100 per annum, with board and residence.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

SURREY DISPENSARY, Southwark, S.E.—Surgeon. Honorarium 50 guineas per annum.

THROAT HOSPITAL, Golden-square, W.—Honorary Anæsthetist.

WAKEFIELD, WEST RIDING ASYLUM.—Pathologist and Assistant Medical Officer. Salary £140, rising to £160, with apartments, board, washing, and attendance.

WANDSWORTH UNION INFIRMARY, St. John's-hill, near Clapham Junction.—Junior Assistant Medical Officer for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

WEST SUSSEX, COMBINED SANITARY DISTRICT.—Medical Officer of Health. Salary £650 per annum.

WINCHESTER, ROYAL HANTS COUNTY HOSPITAL.—House Physician, unmarried. Salary £65 per annum, rising to £75, with board, residence, &c.

Births, Marriages, and Deaths.

BIRTHS.

CROKER-FOX.—On June 25th, at Knole Lodge, Bournemouth, the wife of H. E. Croker-Fox, M.B., of a daughter.

DARE-BASCOMBE.—On June 26th, at The Grange, Saffron Walden, Essex, Edith (née Hastings-Miller), the wife of C. Dare-Bascombe, M.R.C.S., L.R.C.P., of a son.

MARTIN.—On June 23rd, at Eastbourne, the wife of Antony A. Martin, M.D. Lond., D.P.H., of a son.

MORETON.—On June 24th, at Wrington, near Bristol, the wife of Reginald Moreton, M.R.C.S., of a daughter.

SECKER WALKER.—On June 29th, at Oakwood Grange, Roundhay, Leeds, the wife of H. Secker Walker, F.R.C.S., of a son.

TROTTER.—On June 25th, at Bedlington, Northumberland, the wife of R. S. Trotter, M.D., of a son.

MARRIAGE.

SOWRY—CADDICK.—On June 23rd, at St. George's Church, Newcastle, Staffs, by the Rev. S. O'Connor Fenton, M.A., vicar of the parish, and the Rev. Heywood Harris, M.A., George H. Sowry, M.B., B.S. Lond., F.R.C.S. Eng., younger son of T. A. Sowry of Leeds, to Stella, eldest daughter of John Caddick, Brampton Lodge, Newcastle, Staffs.

DEATH.

MURPHY.—On June 28th, at 6, Thornhill-crescent, Sunderland, the residence of her son, Sarah Murphy, widow of William Chapman Murphy, M.D., aged 90.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MR. BLANK OF PICCADILLY CIRCUS.

ON Feb. 20th of the present year we drew attention in THE LANCET to an advertisement in the *Barbados Advocate* of one "G. Thomson Blank (late of Piccadilly-circus, London)" who was described as "Dental Surgeon to His Excellency Sir Frederic Hodgson, K.C.M.G., Governor of Barbados, Lady Hodgson, and Miss Hodgson." A similar advertisement now appears in the *Weekly Record*. We should like to know whether the Governor of Barbados has given his authority for this use of his name—especially in view of the fact that the advertiser says he is in Barbados principally on a health visit—and, if not, why some steps have not been taken to prevent G. Thomson Blank from making an improper use of the name of one of the King's representatives.

THORNE DEFENCE FUND.

To the Editors of THE LANCET.

SIRS,—We beg to enclose a further list of subscriptions in aid of the above fund. The full amount required having been received the above fund is now closed.

We are, Sirs, yours faithfully,

WALTER S. A. GRIFFITH, M.D. Cantab.
WALTER TATE, M.D. Lond.
June 29th, 1904. DOUGLAS DREW, F.R.C.S. Eng.

	£	s.	d.		£	s.	d.
Amount previously subscribed	162	16	0	Mr. James Cantlie	1	1	0
Mrs. Crichton-Stuart ...	10	10	0	Dr. Agatha Porter	0	7	6
Miss Crichton-Stuart ...	2	2	0	Dr. Ada Browne	1	1	0
Miss A. Crichton-Stuart	1	1	0	Mr. C. J. Symonds	2	2	0
Mr. F. W. Willway ...	1	1	0	Dr. G. Danford Thomas	1	1	0
Dr. John D. Rice	1	1	0	Dr. T. Wakefield	1	1	0
Dr. Louisa Atkins	2	2	0	Dr. A. de Steiger	1	1	0
Dr. Mary Murdoch ...	1	1	0	Mr. Samuel Welch	1	1	0
"Vox clamans"	3	3	0	Mr. T. Jenner Verrall ...	1	1	0
Rev. and Mrs. Septimus Buss	5	0	0	Dr. Annette Benson ...	1	1	0
Dr. Katharine McGuvie	1	1	0	Dr. Helen Hanson	0	10	6
Dr. Auguste Boyce ...	1	1	0	Mr. A. G. R. Foulerton	1	1	0
Dr. Heywood Smith ...	1	1	0	Dr. Marie Sharp	1	1	0
				Dr. Elizabeth Courtauld	1	1	0
				Mr. W. D. Spanton ...	0	10	6

"MARTIN'S UP-TO-DATE BEGINNER'S TABLE-BOOK. FOR SCHOOLS AND HOME TEACHING."

IN the review of this book published in THE LANCET of April 30th, 1904, we stated that "we hardly think that the pupil should be told that 'all weights and measures not appearing in the following tables are purposely omitted to prevent a pupil's mind from being crammed with a lot of nonsense.'" Mr. A. J. Martin, the compiler of the table-book, calls our attention to the fact that the words appearing in his table-book are: "All weights and measures not appearing in the following tables are not authorised by Parliament and are therefore 'purposely omitted' to prevent a pupil's mind from being crammed with a lot of nonsense." Mr. Martin thinks that the omission of the words "not authorised by Parliament and are therefore" is very misleading to our readers. Although the words were omitted by a *lapsus calami*, which we regret, it does not follow that things which are not authorised by Parliament must be nonsense.

CHILD-STUDY.

To the Editors of THE LANCET.

SIRS,—Will any of your correspondents be so kind as to tell me where I can obtain some details of the physical and mental development of children from birth up to the age of 14 years? I want to know, for instance, the normal height, weight, and head measurements at various stages and, in fact, any details which will be the means of making child-study really useful. The ordinary text-books on physiology and psychology do not give this information and it is exceedingly difficult for students to carry out observations upon the children they are studying without some accurate guide. I may add that the observations made in this way should help teachers to determine, among other things, whether a child is fit for physical exercise and whether his bodily state is such as to call for medical aid. Thanking you in advance,

I am, Sirs, yours faithfully,
June 29th, 1904. "CHILD-STUDY."

THE SELF-FILLING PEN.

A FORM of pen, "fountain," "stylographic," &c., which can be carried about ready for use is almost as indispensable now to a medical man as it is to a journalist; and it is not surprising, considering the demand for the pens, that various manufacturers have been able to make greatly improved patterns. We have recently had brought to our notice a "self-filling" pen in which, by a simple arrangement of a lock ring, a bulb, and a presser bar, the pen can be filled without any of the usual trouble of unscrewing and without the intervention of any sort of filler. The pen is simply held point downwards in clear ink, a small bar is pressed, and into the vacuum so created the ink rises. The saving of time and trouble is very great and as the pen is easily cleaned as well as easily filled, and is thoroughly well made, it would seem to be sure of a successful future. It is manufactured at low prices by the Conklin Pen Company and sold by the American Agencies, Limited, 38, Shoe-lane, London, E.C.

THE NATIONAL FIRE BRIGADE UNION.

THE National Fire Brigade Union, representing 600 towns and possessing a membership of over 12,000 firemen, has decided to hold its annual camp and competitions at the Crystal Palace from Monday, July 18th, to the following Saturday. The men will be housed in tents pitched in the most beautiful part of the grounds, extending from the Cedars Grove to the Centre Walk, and although, of course, the exigencies of their calling will prevent all the men being off duty for four days together, there never will be less than 3000 men under canvas. Only the smartest brigades, those which have successfully passed through the preliminary trials, will take part in the displays and competitions which are to be held on the broad Firework Terraces. The grand review is fixed for Thursday, July 21st, when the medals and shields will be distributed by the Duchess of Marlborough.

THE INHABITED HOUSE DUTY REPEAL ASSOCIATION.

A CORRESPONDENT informs us that he has parted with 2*s.* 6*d.* as a subscription to this society in response to an application made to him by a man giving the name of W. B. Benham and the address of Albert-buildings, Queen Victoria-street, London. He wishes to know what the position of this association is. We have not ourselves any information on the subject. Possibly some of our readers may enlighten us. We observe that at the address given an association of the name exists.

Hector.—The advice to be given to the unfortunate residents in a cottage where a corpse has to remain among them is not easy to suggest. The room should, of course, be freely ventilated, screened from sunlight and flies as in the case of mortuaries and shut off from the cottage, but where this is impossible it is not of much use to give the advice. The body ought to be removed to a mortuary, but if there is not a mortuary the distressing circumstances mentioned by our correspondent may ensue.

D.P.H.—We are not in a position to give our correspondent information. The examination has not yet taken place, the regulations being published for the first time in this week's issue of THE LANCET. There will be no harm in our correspondent applying to the university lecturer in medical jurisprudence, who happens to be the gentleman most likely to be able to give the information.

An Observant Pharmacist writes a very sensible letter but in spite of his pseudonym he has failed to observe a very prominent factor in the present position. There are districts where medical men must dispense their medicines because there is no one else to do it, the locality not affording a livelihood for a dispensing chemist or druggist.

Hope does not understand the situation and attributes to something which she calls medical etiquette proceedings that are adopted for the safety of the public. The second case appears to show that a condition which was at first unrecognisable became obvious after rest in bed, when operation gave relief.

Ignarus will feel much obliged if anyone can suggest a permanent residence in the Midlands, town preferred, but not essential, suitable for a family suffering from rheumatism and gout. Any suggestions will be highly valued. A place not too cold and sheltered from keen winds is advisable.

An Old Hospital Resident.—We regret to be unable to publish the really humorous story but we think that if it were seen by the public it would convey a very wrong impression with regard to the obstetric assistants nowadays sent out from the general hospitals.

Mr. S. Thistlethwaite sends us a complaint with regard to an advertisement which did not appear in our columns. The questions that he asks us should clearly be directed to the editor of the work in which the advertisement appeared.

Student.—Observations have been made upon the lines indicated, we believe.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 30th, 1904.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. in Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 1.30 p.m.
June 24	29·94	S.	...	123	74	56	56	64	Fine
" 25	29·51	WNW.	0·13	112	66	54	54	59	Cloudy
" 26	29·87	W.	0·07	116	68	51	53	60	Cloudy
" 27	30·04	N.W.	...	118	70	52	53	58	Cloudy
" 28	30·20	N.E.	...	114	71	53	56	62	Fine
" 29	30·13	S.W.	...	118	77	56	58	68	Fine
" 30	29·94	S.E.	...	119	77	55	58	64	Fine

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (6th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.) Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (7th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (9th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

WEDNESDAY (6th).—OBSTETRICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Dr. Lewers, Dr. Purslow, Dr. Sikes, Dr. Tate, Mr. A. Doran and Dr. H. Williamson, Dr. V. Bonney, Dr. Handfield-Jones, Dr. F. Taylor. Short Communication:—Dr. R. Boxall: Case of Inverted Uterus, Spontaneous Re-position. Paper:—Dr. Pembrey (introduced by Dr. A. Routh) and Mr. G. B. Smith: On Sacs containing Fœtuses and lying free in the Peritoneal Cavity of a Rabbit.

THURSDAY (7th).—RÖNTGEN SOCIETY (20, Hanover-square, W.).—8.30 P.M. Annual General Meeting. Annual Report and Balance Sheet. Election of Officers for the ensuing year.

FRIDAY (8th).—OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-square, W.).—Cases will be shown by Mr. E. J. Smyth and Mr. R. S. Batten. Paper:—Mr. G. Coats: Lantern Demonstration on Cases of Thrombosis of the Central Vein.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (4th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Ball: Suppuration of the Accessory Sinuses of the Nose (with lantern slides).

TUESDAY (5th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Ball: Suppuration of the Accessory Sinuses of the Nose (with lantern slides).

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. Collier.

ST. PETER'S HOSPITAL (Henrietta-street, Covent Garden).—3.30 P.M. Mr. P. J. Freyer: Surgical Diseases of the Kidneys.

WEDNESDAY (6th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Beddard: Practical Medicine.

UNIVERSITY COLLEGE (University of London) (Physiological Theatre).—5 P.M. Dr. W. P. May: Advanced Lectures on the Tracts of the Brain—Lecture X.: Smell and Hearing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—3 P.M. Dr. Wethered: Varieties of Pulmonary Tuberculosis.

THURSDAY (7th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Practical Surgery.

CHARING CROSS HOSPITAL.—4 P.M. Mr. Clogg: Demonstration of Surgical Cases. (Post-Graduate Course.)

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Pitzroy-square, W.).—5 P.M. Dr. F. Price: The Diagnosis of Early Pulmonary Tuberculosis (illustrated by cases). (Post-Graduate Course.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Hutchison: Anæmia in Childhood.

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Dr. McCann: Pelvic Cellulitis.

FRIDAY (8th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Bidwell: Treatment of Dilated Stomach.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. Turner: Syphilitic Diseases of the Nervous System.

SATURDAY (9th).—ST. PETER'S HOSPITAL (Henrietta-street, Covent Garden).—2.30 P.M. Mr. W. J. Thomson-Walker: Diagnosis in Urinary Disease.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1904, which was completed with the issue of June 25th, and the Title-page to the Volume, are given in this number of THE LANCET.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1904 will be ready shortly. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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During the week marked copies of the following newspapers have been received:—*Westmeath Independent, Southampton Times, Aberdeen Free Press, Aberdeen Free Press (Weekly), Westminster Gazette, Windsor and Eton Express, South Wales Daily News, Walsall Advertiser, Surrey Advertiser, Reading Mercury, Mining Journal, Local Government Chronicle, Yorkshire Herald, Daily Chronicle, Standard, Liverpool Post, Eastern Morning News, Hertfordshire Mercury, Evening News, Macclesfield Courier, &c.*

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